HELSINKI SCHOOL OF ECONOMICS (HSE)
Department of Business Technology

THE DYNAMICS OF SUPPLY AND DEMAND IN THE LONG TAIL ECONOMY

Consumer Empowerment as the Driver of Market Success

Information Systems Science
Master's thesis
Anssi Falk, k72304
Spring 2007

Approved by the Head of the Department of Business Technology 29/5 2007, and

awarded the grade _____

Hannu Kivijärvi Virpi Tuunainen

HELSINKI SCHOOL OF ECONOMICS
Master's thesis in Information Systems Science
Anssi Falk

SUMMARY
13.05.2007

THE DYNAMICS OF SUPPLY AND DEMAND IN THE LONG TAIL ECONOMY – CONSUMER EMPOWERMENT AS THE DRIVER OF MARKET SUCCESS

Objectives

In the long tail economy online markets, the costs of production, promotion and distribution are significantly lower. As a result, online retailers have the opportunity to supply a product range that is significantly broader as opposed to the situation in the brick-and-mortar markets. Consequently, consumers are presented with an abundant variety of product alternatives. With the aid of information technology as well as the actions consumers themselves take, consumers have the opportunity to find increasingly more specific products that are relevant to their individual needs. This, in turn, changes the way demand behaves as more consumers turn away from hit-products in search of their own niche. The aim of this thesis is to analyze and explicate the changing dynamics of supply and demand in this market environment. The main focus is on the forces that drive this change and, especially on the role that consumers have.

Methodology and literary sources

This thesis is a conceptual analysis that relies on a number of relevant studies. While research, directly concerning the long tail phenomenon, is scarce, there are a number of topics that are relevant to this thesis. Mainly, these topics concern with increasing product variety, problems of abundant choice, consumer search behaviour, virtual communities and consumer empowerment.

Results

Product variety in the online markets is abundant. When consumers are exposed to an unrestricted array of product alternatives, and given the tools to filter it according to their tastes and interests, they may turn away from high-selling hit-products with a broad appeal and instead turn to niche products that are relevant to their more individual tastes. These tools are, on one hand, enabled by information technology but ultimately act merely as facilitators of emerging consumer actions that increase consumer power over the supply side. Consumer empowerment, as one of the main focuses in this thesis, is a result of consumers gaining control over both choice and information on the markets. The amount of power consumers hold, depends on to what degree consumers are willing to capitalize on their chance to have that control.

Keywords

Hit-driven, Long tail, Abundant choice, Hyperchoice, Consumer surplus, Online aggregators, Recommender systems, Search behaviour, Virtual community, Consumer empowerment, Market success

Table of Contents

Index of Figures and Tables

Figures

Tables

1. Introduction

The growth rate of Internet usage throughout the world is nothing short of remarkable. According to statistics from November 2006, during a time period between years 2000 and 2006, North America, Europe and Asia, alone holding over 70% of the global population, have witnessed Internet usage growths of 113.7%, 196.3% and 231.2% respectively (Internet World Stat 2006). Furthermore, a study combining e-commerce growth predictions from different sources noted that the global e-commerce trade volume has shown considerable growth over the last few years and is estimated to be approximately 5578.7 billion US dollars in 2006. In addition, despite the fluctuation of the social economic development, the e-commerce trade volume growth rate is predicted to show little change over the next few years (Yang & Miao 2005).

The role of Internet in B2C commerce is only growing. Thus, it is an extremely important subject of research in itself. Yet, prior research has considered online markets more as an evolutionary extension to traditional brick-and-mortar commerce. However, as this thesis aims to explicate, trends in online commerce have characteristics that can be considered rather as revolutionary and they seem to be reshaping the structure of the economy as a whole. This economy, referred to as the "long tail economy" as coined originally by Anderson (2004), appears to be changing the dynamics of supply and demand as well as interactions between them. The implications are far-reaching. Not only do the businesses need to review their business models and strategies but consumers face the need to change their behaviour to efficiently reap the benefits of this changing market environment.

The concept of the long tail economy, in contradistinction to a hit-driven economy, refers to the market environment enabled by today's information technology. The digital nature of products such as music, movies, magazines or books – to name a few – allow online retailers to offer a far more extensive product range than ever before. Tangible products face a similar situation as increasingly cost-efficient supply chains together with applications of information technology allow hybrid online retailers to

offer a growing array of alternatives as well. This is because many of the brick-and-mortar concepts such as shelf space, shelf rent and market locality are, for the most part, irrelevant in the e-commerce environment.

However, the long tail economy is not only about abundant choice. Without the tools to manage this choice, it would be overwhelming for the consumer to manage. Information technology plays a significant role in aiding consumers to find and filter this array of alternatives into a manageable set of choices. As importantly, the Internet enables new forms of interaction between networks of consumers. As argued in this thesis, various forms of online communication between consumers play a crucial part in bringing information to the markets and thus increasing market transparency. Consumers are gaining control over the information available, and consequently over the choices they make. This control over choice and information translates into consumer empowerment.

It is the increasing consumer power over the supply-side that is changing the way demand behaves within the e-commerce environment. It seems that the balance of power between hits and low-selling niche products is shifting as larger proportions of sales are achieved from the accumulated sum of sales along the long tail (outside the top 10 or top 100 etc.) of the product sales distribution curve - hence the term long tail. As consumers are exposed to an unrestricted array of alternatives and given the tools to find the products that are most relevant to their tastes and interests, the persistent illusion of "popular is better" begins to fade.

1.1 Research questions and prior research

The research questions in this thesis are divided into one main question and four sub questions. The main question aims to explicate how increasing consumer power affects the market success of products available in the online markets. The first sub question focuses on the forces that drive consumer empowerment in the long tail economy. This question is mainly addressed by examining abundant choice and market transparency. The focus of the second sub question examines the roles that information technology and consumer actions play in managing this choice and the

impact they have on market transparency. The third sub question addresses the supply-side drivers that contribute to the growing product variety in the online markets. This question focuses mainly on the business models that the Internet has enabled. Finally, the fourth sub question explicates the reasons for the evident shift of demand from hit-products to niche products.

Thus, in summary the research questions in this thesis are as follows:

- What are the impacts of consumer empowerment on the market success of products in the online markets?
    - What are the drivers of consumer empowerment in the long tail economy?
    - What are the roles of information technology and consumers in market transparency and managing abundant choice?
    - What are the supply-side drivers that enable the growing product variety in the online markets?
    - Why does demand shift from hits to niche products?

Research directly addressing the long tail phenomenon is only now emerging and, as such, is still relatively sparse (Anderson 2004, 2006; Brynjolfsson et al. 2006). Still, much prior research has focused on topics that are relevant to the research questions in this thesis.

Previous research has focused on problems of abundant choice (Maxwell 2005; Mick et al. 2004). Yet, this research has focused mainly on choice in the traditional brick-and-mortar markets. Bringing the issue of abundant choice online, however, requires an approach that includes the study of online consumer search behavior (e.g. Brynjolfsson & Smith 2000; Johnson et al. 2004; Kumar et al. 2005) as well as the IT-enabled tools managing this choice (e.g. Herlocker et al. 2000; Mika 2005; Tirri 2003).

Virtual communities, which play a significant role in the market transparency of the long tail economy, have been researched in various studies (e.g. Rheingold 1993;

Balasubramanian & Mahajan 2001; Culnan 2005; Gupta & Kim 2004). Consumer empowerment, especially from the perspective of information transparency, has also been previously addressed (e.g. Jenner 1994; Shipman 2001; Dellarocas 2003; Harrison et al. 2006).

1.2 Objectives and limitations

The aim of this thesis is to explain how information technology, and consequently the consumer actions they enable, is transforming the rules that dictate the market success of products. While the focus is on the forces that drive abundant choice, market transparency and ultimately consumer empowerment, the aim is to explain how these issues affect the online market environment as well. As importantly, the aim of this thesis is to emphasize the impact consumers themselves have on the power they hold over the supply-side.

By answering the research questions stated above, the objective is to describe an evolving market environment in which traditional market strategies may not be as effective as before. As consumers gain control over information and consequently over choice, supply-side strategies, relying in controlling information and choice, become increasingly obsolete.

While being a detailed examination of the long tail economy, this thesis focuses mainly on describing this environment from the perspective of consumers. Thus, the focus is not on explicating the actions the supply-side needs to take in order to succeed in this environment. In addition, while the growing product variety in the online markets is examined, no comprehensive distinction between different product categories is made.

1.3 Methodology and structure

This thesis is a conceptual analysis that relies on a number of previous studies. While only a fraction of previous research concerns directly with the long tail economy, there are numerous studies that are highly relevant in regards of the topic of this thesis.

The following chapter focuses on explicating the characteristics of the hit-driven economy (as opposed to the long tail economy). This chapter also explains the changes this type of economy has faced. Chapter three examines the long tail economy from the perspective of the supply-side, focusing on the forces that drive product variety to the markets. Chapter four focuses on the impacts of increasing product variety and examines the various ways information technology aids consumers in managing this variety.

Chapter five examines the differences between supply- and demand-side information. It also explicates the changes in market transparency. The main focus is on networked consumers and communications between them. The next chapter explains how increased consumer control over information and choice translates into increased consumer power. Increased consumer power, in turn, is explicated to have a profound effect on the market success of products in the online markets.

2. Background - Unifying Economies and Cultures

Through heavy industrialization along with the birth of modern transportation, cities began to form, uniting the once separated people and their cultures. The Industrial Revolution gave birth to a mass society as large concentrations of people came together in industrial towns and trading centers (van Dijk 1999, 23-24). In the mid to late nineteenth century, several new technologies from improved commercial printing technology to the phonograph made way for mass media. Later, these technologies were accompanied by the broadcast mediums of radio and television. First, working on a local and regional basis, these new broadcast mediums were quickly further developed to extend their reach on whole nations. The second wave of Industrial Revolution, having moved people from local to national economies, also facilitated the convergence of local cultures to a national one. (Anderson 2006, 27)

The second wave of the Industrial Revolution is often characterized by the technological innovations which heralded a period of about 70 years of ongoing, rapid technical change ultimately leading to a new economy characterized by faster growth in productivity (Atkeson & Kehoe 2001). The Industrial Revolution contributed much more to the new economy than only the obvious advancements in productivity. Through urbanization and the mass media it enabled the birth of the hit-driven economy we have lived in up to these days.

2.1 Rise of the hit-driven economy

The then-new technology-enabled forms of mass media – namely the press, television and radio – gave rise to the music, television and movie industries. Record labels were able to present their products to whole nations, first via radio broadcasting and later, with the advent of music videos, also through television screens. Television introduced the nation to a number of TV-shows and movies. The mass media was able to reach the audience, first within a nation and later further across national boundaries.

As both radio and television gained popularity, their contributions as cultural unifiers only grew. Incredible proportions of a nation were tuning in to the same radio- and TV-shows – and reading the same news. The term "water cooler effect" – a product of the hit-driven era of the 20th century – describes the way workers, gathering around the office water cooler could always find someone to talk about a particular TV- or radio-show episode or a piece of news read in the morning. Indeed, people, to great extent shared the same cultural events and phenomena from fashion to music to television shows – largely thanks to mass media (Anderson 2006, 29-30).

It wasn't only the entertainment industry that reaped benefits from the nationwide reach. Companies producing all kinds of goods could now introduce their products to a larger audience by the means of mass media. As people were already listening to their radios, watching their televisions and reading their newspapers and magazines, advertising was a very lucrative source of income for those owning the air-time or printing the papers. TV-advertising alone has broken records each year as companies have been paying more and more for a prime time spot to advertise their products (Anderson 2006, 30).

2.2 The impact of scarcity

As the new economy took form, it was obvious that not every player or product could enter the mass market. After all, there was only so much bandwidth for radio and television broadcasting, only so many pages on a news paper or a magazine to fill with articles, and obviously, only so many hours a day to attempt to catch consumers' attention in. And of course, there were only so much productive resources and producers of different types satisfying the demand of consumers. Indeed, the very term "economics", as Encyclopedia Britannica defines it, is "[t]he study of how individuals and societies choose to employ (scarce productive) resources: what goods and services will be produced, how they will be produced, and how they will be distributed among the members of society". This description held true in the new economy as much as it did in the agrarian economy before the Industrial Revolution.

The scarcity of productive resources and means of (wide) distribution resulted in a divide between the hits and the misses. Retailers of any kind chose products that would earn their place on the store shelf, meaning that it would create enough sales to cover the renting costs of the shelf space it occupied and any other overhead costs concerning the acquirement and distribution of that particular product. Similarly, it was only natural for the media industry to fill their radio- and TV-frequencies and schedules with programs, movies and music with the most appeal, and for the press to print out the news or other articles that would gain the attention of most readers. Companies of all types produced and introduced products and services that could capture the mass market, often equipped with a big marketing budget which enabled them to get the attention of the masses through mass media advertising.

Indeed, it seemed as it there was a certain universal taste, a gold vein that all should try to tap into. Be it music, clothing, movies or food, it appeared - at least after the unifying effect of mass media and entertainment industry that took its hold on the culture – that there was a certain formula to create products that appealed to the big demand, thus creating big-selling hits. And indeed, that has in some ways been the case for the last century and beyond.

The problem was that demand was to a great extent dictated by the big players of media and entertainment industries, pre-filtering the supply to contain as many big-selling hit-products as possible, appealing to the tastes of the biggest possible audiences. It was not so much that demand necessarily focused on products that were just that good. The supply-side pre-filtering, conducted by media, entertainment and other industries resulted in a situation where consumers had little to choose from. It was all about the supply-side, trying to predict demand and tailoring their offerings accordingly.

It was not only the distribution of goods that was dictated by the biggest players of the supply-side. The distribution of product information was much in the hands of mass media as well. Consumers didn't actually have much access to information about products pre-filtered from the hit-markets. Even if it was possible to get the information, the search costs for the consumer to obtain it rose too high to make it worthwhile.

The hit-driven economy was then also a hit-driven culture. Consumers were driven by lower search costs, facing just a small, pre-filtered collection of products in each product category – at least compared to what was being produced. They turned to hits, to a big part because there was not much other they could do, partly because choosing a hit was, in many ways, a safe bet. Consumers were closely following the music billboard charts and other top-lists. The success of a hit-product created a positive loop; the more popular a product was, the more it was considered to be better than those behind in the sales charts and the more it was bought, becoming even more popular. The Pareto Principle (or the 80/20 rule) seemed to apply well in the hit-driven economy. The hit-driven economy appeared to be a true winner-takes-all environment in which 20% of the products attributed for 80% of all sales.

2.3 The shift from mass media

Until the last few years, during the hit-driven era, the broadcast and printed mediums of television, radio, newspapers and magazines have steadily gained popularity. Different sectors of the entertainment industry have tried to reap the benefits of the hit-focused approach of the traditional media by striving to create and push hits with mass appeal to the market. The hits with enough potential to reach the top lists of mass media would be likely to maintain their status as hits as they got their part of the monopoly on exposure the mass media controlled. In this scenario the Pareto principle seems applicable. If not exactly following the classical 80/20 rule, still a relatively small percentage of the whole supply contributed to a very large proportion of total sales.

Now it seems that something significant is happening. Anderson (2006) exhibits statistical evidence that shows a shift away from the traditional mass media. For the radio in the US markets, Americans have cut down their listening from the 1993 figure of twenty-three hours and fifteen minutes per week to the amount of nineteen hours and forty-five minutes in the spring of 2004. Not only is this shift concerning radio; Anderson (2006, 37) describes a number of examples throughout the sector of

mass media and entertainment in the United States. These statistics from 2005 include the following

- Hollywood box office fell 7 percent, continuing a decline in attendance that started in 2001 and appears to be accelerating.
- Newspaper readership, which peaked in 1987, fell by 3 percent (its largest single-year drop) and is now at levels not seen since the sixties.
- Magazine newsstand sales are at their lowest since statistics have been kept, a period of more than thirty years.
- Network TV ratings continue to fall as viewers scatter to cable channels; since 1985, the network's share of the TV fallen from three-quarters to less than half.

It really appears that the traditional mass media is losing its grip and thus does not have the same kind of dominance that it still had only less than a decade ago.

2.4 The changing balance in the entertainment industry

A closer look reveals that it is not only the media industry that is witnessing a change in consumer behavior. Feeding from the hit-focused approach of traditional mass media, the entertainment industry, including movies, TV and music, is facing an interesting change concerning its sales and more precisely how the sales are distributed within their respective sales curves. As we are coming from - and still to a large extent living in – a hit-driven economy, it's reasonable to look into the statistics concerning the balance between hits and lower-selling niche products. Deriving from the raw sales data from various sectors in the entertainment industry, Anderson presents a number of statistics showing this shift in balance. The charts in figure 1 seem to show a clear decline in the proportion of sales of hit albums (500.000 sales and up) out of all album sales in the US music industry. As it seems, the steady growth of hit-album sales has now turned into a steep decline for the first time in almost 50 years. One could argue that demand for music albums as a whole has declined, and in part this is true. Still, just the fact that this chart is about the share of

hit albums from all sales indicates that the demand is shifting rather than just diminishing.

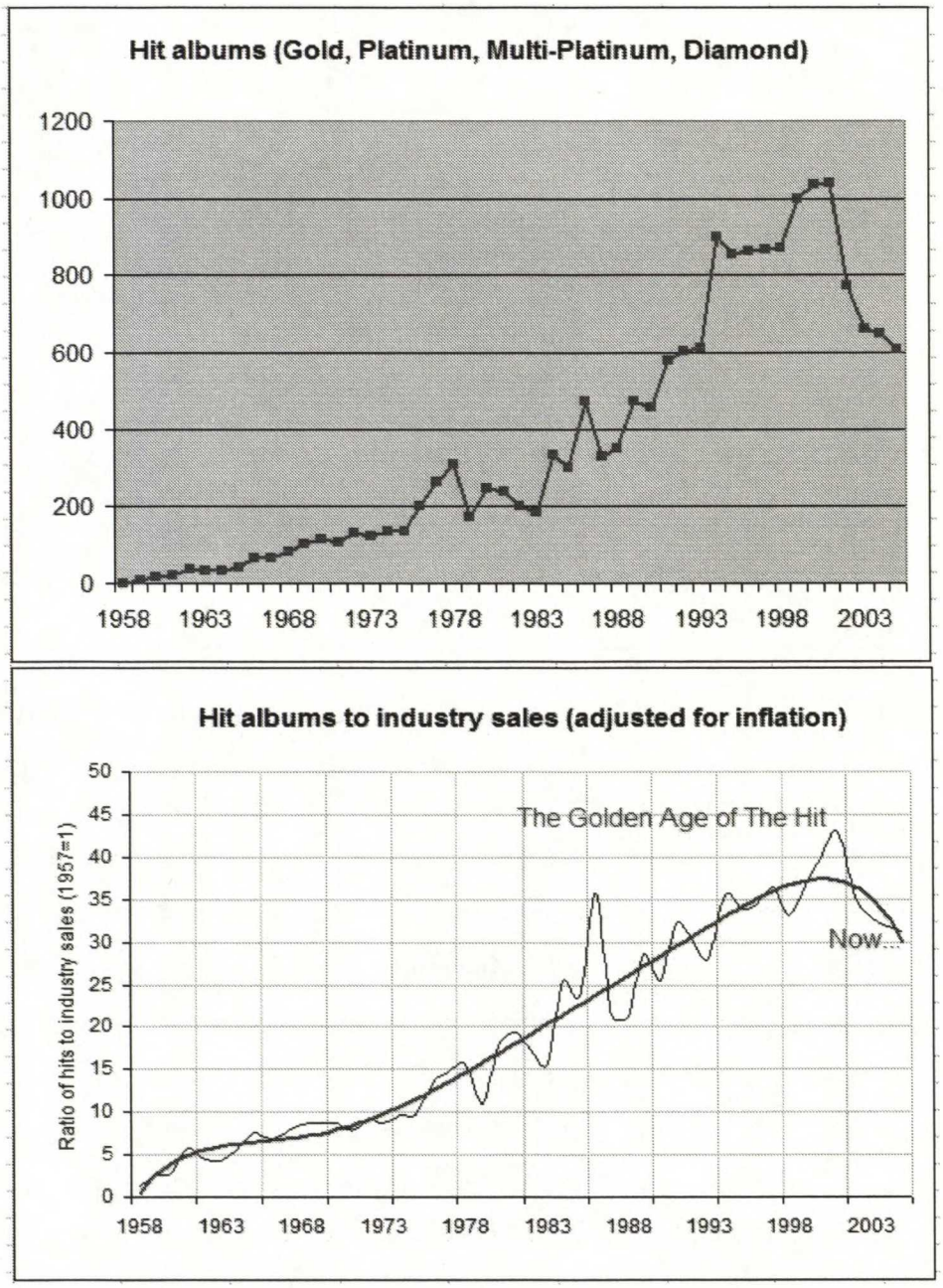

Figure 1: US hit album sales and hits to industry sales ratio (Anderson 2006)

Figure 2 shows the yearly share of the top 25 movies from the total box office revenue. It also shows the percentage of average costs these movies have from total box office costs. It appears that at the same time the share of revenue brought in by hits is declining, the average costs contributable to these movies have only been rising.

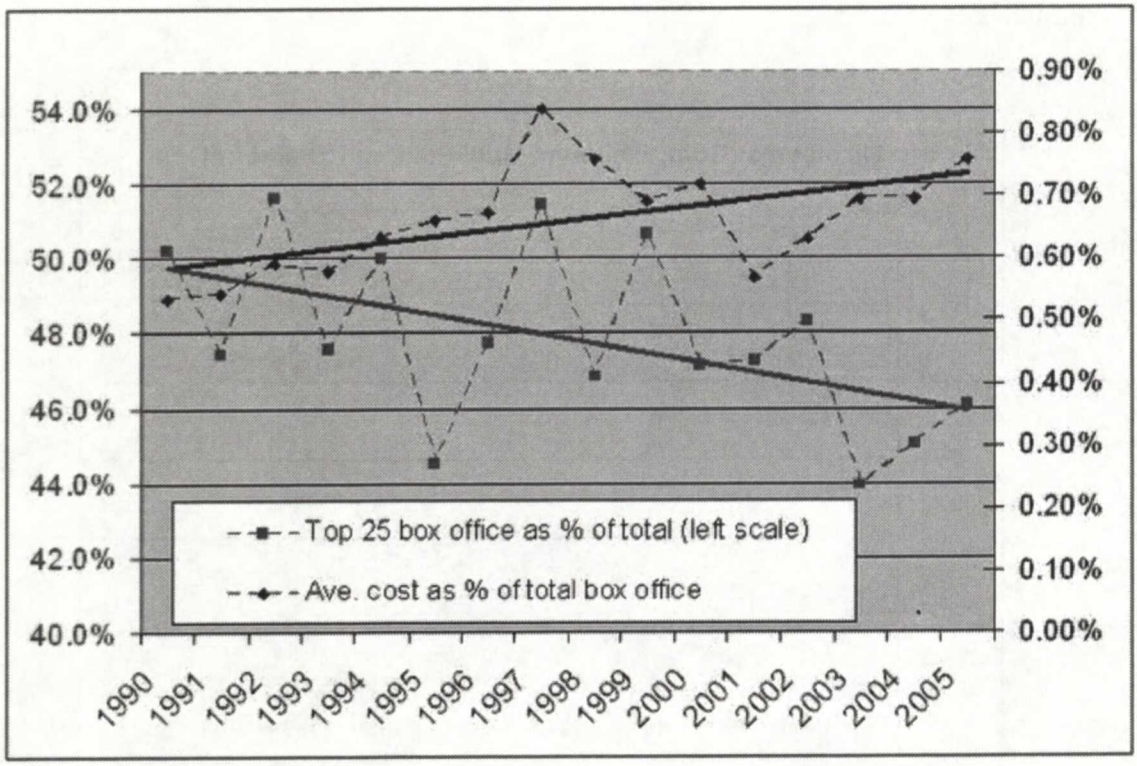

Figure 2: US top 25 box office sales as a percentage of all sales (Anderson 2006)

Given that this change in demand is only partly contributable to an overall diminishing of demand, where does the demand shift to? The clear shift away from traditional mass media of the hit-driven economy has much to do with the accelerating growth in Internet usage. Much of this can be contributed directly to the fact that Internet serves more and more as an alternative channel for almost anything that can be served through the traditional media. Still, it does not directly explain the interesting shifts occurring in the sales distribution curves of the different sectors of the entertainment industry as well as other industries enabled by this constantly developing online-environment.

2.5 What is the long tail?

The long tail is actually a feature of a certain kind of statistical distribution. This distribution holds a high-volume population in the head of the distribution curve, followed by a low-volume population in the tail of this curve. The population in the

tail is expected to gradually diminish and eventually reach zero when moving along the tail.

Bringing these distributions to the area of economics, they can be thought of as sales distributions. In this case, the head of the curve holds a considerably small amount of products but also the greatest volume of sales (the population). Moving along the long tail of the curve, the amount of products increase but, at the same time, the amount of sales, generated by these products gradually diminishes. Coming back to the fore mentioned Pareto principle, the head of the curve (also known as the Pareto curve) comprises of 20% of the whole product variety, generating 80% of all sales. Accordingly, the long tail (or 80% of the product variety) should generate only 20% of all sales.

Considering this, to supply only the products in the (short) head of the distribution would be justified as it can be argued to create the most profit. Accordingly, offering the long tail products could be considered as increasingly unprofitable as the sales-per-product ratio declines. As it will be discussed further below, one theory behind the long tail economy (Anderson 2004, 2006; Brynjolfsson et al. 2006) suggests that, rather than just focusing on the sales of individual products, the sales of the products that the long tail comprises of, can cumulatively account to a surprisingly large proportion of sales as a whole.

The chapter to follow discusses the evident shift from offering products only from the head of the sales distribution to offering an abundant variety of products. The chapter also focuses on the reasons why the long tail can actually be profitable. The later chapters also aim to explain the forces driving the demand towards the long tail and, to some extent, away from the hit-products as already exhibited in figures 1 and 2.

3. The Emerging Long Tail

Going online has permanently changed the way markets work. The research article by Brynjolfsson et al. (2006) titled "From Niches to Riches: The Anatomy of the Long Tail" describes the changes various markets are now realizing: "[...] now dozens of markets, from beer to books, music to movies, and software to services of all types are in the early stages of a revolution as the Internet and related technologies vastly expand the variety of products that can be produced, promoted, and purchased" (Brynjolfsson et al 2006, 67). Brynjolfsson et al. (2006) as well as Anderson (2004, 2006) use a number of convincing examples to demonstrate and explain the shift away from the biggest selling hits in different markets.

The market for books gives a good example exemplified by *Amazon*, a company known mainly as an Internet book retailer but offering products from various other product categories as well. Compared to a typical brick and mortar book store that typically holds an inventory of anything between 40.000 and 100.000 unique titles, *Amazon* stocks about 3.7 million unique titles. What is significant is that by analyzing Amazon's sales patterns, it is evident that about a quarter of *Amazon's* book sales comes from outside its top 100.000 titles – that is, from titles not even sold in the traditional brick and mortar markets. (Brynjolfsson et al. 2006)

Another good example is *Netflix*, a company renting DVDs online. Again, the total inventory *Netflix* holds is about 55.000 unique DVD titles while the biggest brick and mortar companies in movie rentals stocks about 3.000 unique titles. Furthermore, *Netflix* itself has approximated that 95% of its inventory is rented at least once a quarter, and about 21% of all sales are coming from products not available in offline retail stores. (Anderson 2006)

The online music market exhibits yet another example of this long tail shift. *Rhapsody* is a subscription-based music streaming service that currently holds an inventory of over 1.5 million music tracks, whereas a typical Wal-Mart offers about 55.000 tracks.

Again, about 41% of *Rhapsody's* total sales come from products that are not available in offline retail stores like Wal-Mart. (Anderson 2006)

These are just a few of the long tails that are emerging in various markets these days. The implications of this phenomenon are far-reaching for both the supply and the demand side of the new economy. Indeed, it seems that the online-environment changes the way both supply and demand behaves. On the supply side, virtual retailers are able to offer a bigger variety of products than ever before, not controlled by the same economics of scarcity that dictated much of the hit-driven economy throughout the 20th century. At the same time the demand for hits appears to be shifting in many cases towards niche products as is the case in the fore mentioned examples. In this scenario, in its traditional sense, the Pareto principle simply does not hold true anymore.

The remaining part of this chapter aims to describe what exactly drives the emergence of the long tail economy. Latter chapters also study further the effects this phenomenon has on the dynamics and interaction of demand and supply in the online environment.

3.1 The characteristics of e-commerce and consumer surplus

From the early stages of e-commerce, information technology has been described as an enabling force bettering the basic functions of markets. These include matching buyers and sellers, facilitating of transactions and providing institutional infrastructure (Bakos 1998). The characteristics of IT–enabled e-markets that distinguish them from their traditional counterparts are plenty.

The more researched impacts IT has for both supply and demand include the independence of time and place. Indeed, information technology has had a dramatic impact on how supply and demand are connected. Compared to their traditional counterparts, Internet retailers are able to aggregate demand on a national and further, on a global scale. Similarly, consumers have a better possibility of finding exactly what they want as they are able to search much further than before, again even on a

global scale. This search, in turn, becomes more and more efficient as IT enables more effective tools to facilitate searching.

These benefits, though, do not only affect matching supply and demand. Much prior research has focused on the claims that Internet represents a nearly frictionless market (Bakos 1998). The impact of lower search costs enabled by information technology has been widely speculated to reduce much of the monopoly power of supply over demand visible in the traditional localized brick-and-mortar markets.

The ability of Internet marketplaces to reduce search costs for price and product information is shown to promote price competition among sellers. A study by Brynjolfsson and Smith (2000) researched the effect of lowered search costs for two categories of homogeneous products, books and CDs. They concluded that Internet retailers charge on average 9-16% lower than in conventional outlets, depending on whether taxes, shipping and shopping costs are included in the price. Still, Brynjolfsson and Smith noted that the level of price dispersion on the Internet was surprisingly high. Prices among different online retailers varied as much as by 47%. Furthermore, it was found that retailers with the lowest prices did not necessarily make the most sales (Brynjolfsson & Smith 2000).

The impact information technology has on the markets goes however much beyond of what prior research focusing on lowered search costs and frictionless commerce has suggested. While much of the attention in academic research and media has been on the operational efficiencies brought upon by the new online channel, more recent studies have found new and presumably more significant sources of consumer surplus. In a study Brynjolfsson, Hu and Smith (2003) examined the Internet book markets and the economic impact of increased product variety made available through these electronic markets. The findings of the research suggested that the increased online availability of previously hard-to-find (or impossible-to-find) products has an impact on consumer surplus that is up to seven to ten times more significant that the lower prices due to intensified price competition (Brynjolfsson et al. 2003).

As the examples described in the chapter introduction clearly suggest, consumers make use of the increased availability made possible by the online channel as the

more recent research concerning the impacts on consumer surplus would suggest. But what makes the increased product variety possible?

3.2 From scarcity to abundance – the supply-side driver

Brynjolfsson et al. (2006) compare the product variety between the Internet and brick-and-mortar channels. The approximated figures for six different product categories are as follows:

Product Category	Large Online Retailer	Typical B-&-M Store
Books	3,000,000	40,000 – 100,000
CDs	250,000	5,000 – 15,000
DVDs	18,000	500 – 1,500
Digital Cameras	213	36
Portable MP3 players	128	16
Flatbed Scanners	171	13

Table 1: Product variety: B&M versus online (Brynjolfsson et al. 2006, p. 70)

As it can be seen, the differences between product variety for the Internet and traditional brick-and-mortar channels are significant. To understand how these differences are possible, one must look into the characteristics that separate these two channels. Or more precisely, what are the constraints the tangible brick-and-mortar markets face as opposed to the e-markets.

As the introductory chapter explained, the economy we have lived in for much of the last century to these days has been an economy of scarcity. This scarcity has constrained both the production and the distribution of products. These constraints in turn have resulted in both limited exposure and availability of these products. The products, conceived by the supply-side as potential sellers would get much of this limited exposure and distribution constrained by the scarcity. Thus, retailers of any sort would quite justifiably prefer to stock the products with the most hit-potential. Figure 3 gives a visual explanation of what happens.

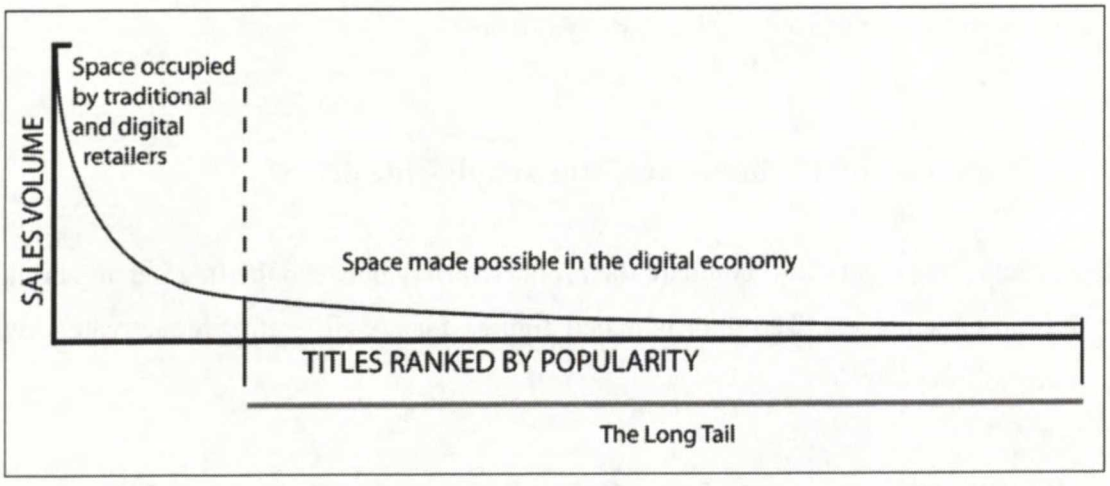

Figure 3: Long tail curve and product variety (Anderson 2006)

The point where traditional retailers would limit their inventory to is represented by the dotted vertical line. Simply put, the products on the left side of the line represent the ones that create enough sales to earn their place in the inventory of traditional retailers whereas the products on the right side are left out. This leaves consumers with a supply pre-filtered by the supply-side. The reason for this quite harsh division comes again from the constraints of the tangible world.

One of the more obvious constrains traditional brick-and-mortar retailer face is the concept of limited shelf space. Whether a Wal-Mart type of super center store or a specialized retailer, all brick-and-mortar businesses face the same constraints of limited shelf space, only allowing them to offer a small percentage of the product variety available altogether. In addition, this limited shelf space is costly. Anderson (2006, 153) describes the reasons for costly shelf space as follows:

> In early 2005, mall retail space in major U.S. markets was renting for an average of nearly $40 per square foot; this can put the net space cost of each square foot of shelving at between $26 and $33 a month. Then there are the other overheads of brick-and-mortar retail: sales staff, inventory depreciation, power and other utilities, shoplifting and other "leakage" issues, returns, insurance and marketing costs. Combined, these types of overhead can nearly equal the space costs, bringing the total rent on that twelve-inch-by-twelve-inch square of shelving to at least $50 a month. With an average retail markup of 40%, this means that for the average square foot of mall shelf space must account for between $100 and $150 in sales a month – and that's to simply pay its way.

Another obvious constraint is that these retailers are bound by geography. What these retailers offer can only find a local audience. This means that anything they offer should be something with the most appeal, and thus meet the most demand. Stocking niche products is not generally a feasible solution as they face much less demand. They simply would not attract a big enough local audience and create enough sales to earn their place on the costly shelves. This pushes the retailers accordingly to pre-filter their offerings to find the biggest local audience possible, thus focusing on hits.

This scenario applies to the entertainment industry as well. Why produce, promote or distribute something that will not have enough appeal to demand for the product to earn its place on the limited number of movie screens, TV or radio channels, not to mention the twenty four hours consumers have to consume all of this. Similarly, news papers aim to print the news that will catch the attention of most people. Sure enough, it's only a fraction of what happens around the world each day as are the movies shown around the world a fraction of what is produced. The point is, when limited by scarcity of resources, the only economically feasible option is to offer products with most demand – or more precisely, what the supply-side predicts to have the most demand.

It is then quite easy to understand why these brick-and-mortar retailers or entertainment industry players have aimed to pre-filter their offerings to consist of products that earn their place in the shelves, broadcast waves or movie screens. In fact, doing anything else in an economy dictated by scarcity of resources seems highly irrational.

As the introductory chapter explained, this hit-centric supply-side approach affected demand accordingly. Consumers, faced with limited, pre-filtered choice, choose from what is offered. This tends to create the illusion of a division to high selling hit-products and low selling niche products as if this division was straight result from what consumers were deciding. The reality – and what the long tail phenomenon is showing – is proving to be something else.

3.3 Democratizing the tools

If the hit-driven economy has been one of scarcity, the long tail economy is all about abundance. Advances in technology have driven the costs of things like transistors, storage or bandwidth down to near zero. That in turn has a significant impact on markets that are increasingly taking their form in the online environment. And essentially, the more these technologies evolve and the more transactions take place online, the more the constraints of the physical world become obsolete.

Brynjolfsson et al. (2006) call this the "supply-side driver" of the long tail. Without the limitations of the traditional brick-and-mortar retailers, Internet retailing is able to push far more variety into the markets. As stated, storage and bandwidth costs are nearing zero as advances in technology take place. For products that can be all-digital such as music, movies, television and radio programs, news and journals, concepts like storage and bandwidth are exactly the ones that matter. In the brick-and-mortar markets, stocking decisions are to a great extent driven by the constraints of limited and, as mentioned earlier, often very costly shelf space. On the other hand, on the Internet, the cost of stocking an additional product is much lower. If products are digital, all it takes to stock an additional product is storage space on a server hard drive.

In addition, as all it takes to distribute these all-digital products is bandwidth, the difference in costs of distribution compared to the traditional brick-and-mortar businesses is enormous. Furthermore, distribution through online channel makes it possible for Internet retailers to aggregate demand on a national or even global scale. Whereas brick-and-mortar retailers face the task of maximizing local demand by stocking products that appeal to mainstream taste, Internet retailers can stock products with niche appeal because the aggregation of demand ensures that these niche products meet the demand big enough to justify their existence in the inventory of the retailers.

These characteristics have all contributed to the emergence of online retailers offering a huge range of products in various product categories. This is evident by just looking

at the numbers in table 1 (see page 19). A thing still worth noting is that these retailers do not restrict themselves to offering only all-digital products.

3.4 The business aggregators: Amazon and Google

Amazon offers a variety of goods with most of them outside the category of digital products. It offers a range of physical goods which supposedly face the constraints of the physical world. Still, it offers a variety of physical goods far greater than any traditional brick-and-mortar retailer ever could. What makes this economically feasible for *Amazon* is the fact that it is more of an aggregator than just a retailer.

In its early stages, *Amazon* gained considerable cost and scale benefits with centralized warehousing. These huge warehouses, not needing to be exactly where the demand was, could be built where it was cheapest. Through its electronic catalog the supply was still at hands of anybody on a national, and further, on a global scale, aggregating effectively demand to one place: *Amazon's* website. *Amazon* reduced its inventory risk even further through a consignment program. Initially only concerning books, this program enabled authors, for a yearly fee, to ship their books to Amazon which would sell them, leaving the authors with 55% of the proceeds. In essence, *Amazon* didn't have to pay for the books it kept in its warehouses.

Amazon lowered its costs even more extending the virtual inventory model by bringing in big retailers of many kinds. Through its e-commerce technology, *Amazon* created storefronts for the partners, but left the management of inventory entirely to these partners. Thus, with every new partner, Amazon's effective inventory grew by millions of items. Further extending the virtual inventory, *Amazon* partnered with smaller retailers, offering them the opportunity to have their goods listed on *Amazon's* website just like the products in *Amazon's* own warehouses.

Amazon is a good example of a hybrid retailer, falling between a purely virtual and a brick-and-mortar retailer. *Amazon* distributes its goods through the mail or e.g. *FedEx*. At the same time it gains efficiencies in lowering the supply-chain costs with

centralized warehouses and being able to offer a seemingly unlimited catalog supported by information technology.

Although, still faced with constraints of the physical retail world and not realizing same kind of cost benefits than retailers of purely digital products, *Amazon* and the likes have proven that just with sophisticated supply chains, online companies are able to cost-effectively offer an enormous variety of products. By aggregating supply, these aggregators are democratizing distribution, enabling small niche businesses to reach the same big market and demand that earlier only the bigger businesses had access to. Furthermore, for consumers this means an access to a bigger variety of products than ever before. In addition to the big selling hit-products, this variety consists much of niche products, forming the long tail. Anderson (2006, 88) describes this as the root calculus of the long tail: "The lower the costs of selling, the more you can sell".

Physical or digital goods are not the only ones that businesses are aggregating. Anderson (2006, 89) presents five different categories of business aggregators:

1. Physical goods (e.g., Amazon, eBay)
2. Digital goods (e.g., iTunes, Google)
3. Advertising/services (e.g., Google, Craigslist)
4. Information (e.g., Google, Wikipedia)
5. Communities/user-created content (e.g., MySpace, Bloglines)

Google, worlds biggest and most successful search engine is a great example of a business aggregator. It falls into three of the five above mentioned categories: digital goods, advertising/services and information. *Google's* revenue, which is almost completely from advertising, has grown significantly every quarter since 1993. *Google* reported revenues of $2.69 billion for the quarter ended September 30, 2006, representing a 70% increase over third quarter 2005 revenues of $1.58 billion and a 10% increase over second quarter 2006 revenues of $2.46 billion (Google 2006).

Obviously, *Google's* business model in advertising is a very lucrative one for the company. Though, what makes *Google's* advertising model different from the

traditional hit-centric approach of the mass-media-focused advertising industry is the fact that it offers a low cost of entry for advertising for smaller niche businesses. Whereas the mass-media-focused advertising has efficiently excluded smaller businesses altogether, much due to the fore mentioned scarce and expensive resources like broadcast times on television or radio, or the limited advertising space on magazines, *Google* has enabled businesses of all sorts and sizes to gain visibility and reach the same demand that earlier was the prerogative of the biggest players with multi-million advertising budgets.

Google understood that with lowering the cost of both selling and buying advertising, it could dramatically increase the pool of potential ad buyers and sellers. And with advertising services like *AdWords* and *AdSense*, *Google* has lowered its costs considerably. Much of *Google's* cost reductions come from the fact it uses a very simple and cheap software-automated self-service model in which anybody can become an advertiser by buying a keyword in an automated auction process. In addition, *Google* has made it possible for web publishers, both amateur and professional, to provide advertising space via *Google*, again, through a self-service model. In essence, *Google* provides these services at near zero cost while profiting for every click on an advertisement via its services. Whereas most of *Google's* profits come from its biggest customers, the majority of its customers are smaller businesses spread throughout the long tail. Furthermore, from the perspective of profit, a vast majority of these customers earn their place in *Google's* "inventory".

Successful companies like *Google* and *Amazon* have realized that through significant cost reductions they are able to offer a vast variety of products and services and enable the existence of a variety of producers and retailers and still make it economically feasible. If the cost of stocking an additional product or providing an additional customer a service approaches zero, even one sale can make the difference between being unprofitable and profitable. This, in essence, is the force driving content into the long tail.

The democratizing effect, enabled by IT, isn't only affecting the tools of distribution and promotion. Another force driving content to the long tail is one of democratizing the tools of production. The same technological advances that reduce the costs of

promotion and distribution are considerably lowering the costs of producing digital goods in categories such as music, video, photography and publishing.

A survey conducted by Nielsen/Netratings concluded that different user-generated content sites, such as platforms for photo sharing, video sharing and blogging, comprised five out of the top 10 fastest growing Web brands in July 2006 (Nielsen/Netratings 2006). As it seems, an increasing amount of user-generated content is competing with professionally produced content for consumer attention online. Although user-generated content necessarily isn't a competitor in the sense that it would compete for market share – as they are mostly distributed free of charge - they still heavily contribute to the growing product variety the consumers face in the new economy of abundant supply.

3.5 On the profit potential of the long tail

Information technology has dramatically reduced the costs of producing, promoting and distributing products. This, in turn, lowers the profit threshold of online-retailing. Understandably, the aggregators of all-digital products, in which case the products can be both stocked and distributed digitally, have the lowest profit threshold and are thus able to stock the largest variety (the longest tail). This makes these aggregators a prime example of the supply-side driver of the long tail. Still, hybrid retailers like Amazon prove that with the right business model and efficient use of information technology, stocking a far greater variety of pure physical goods is possible. Figure 4 gives an idea of the relation between profit threshold and product variety.

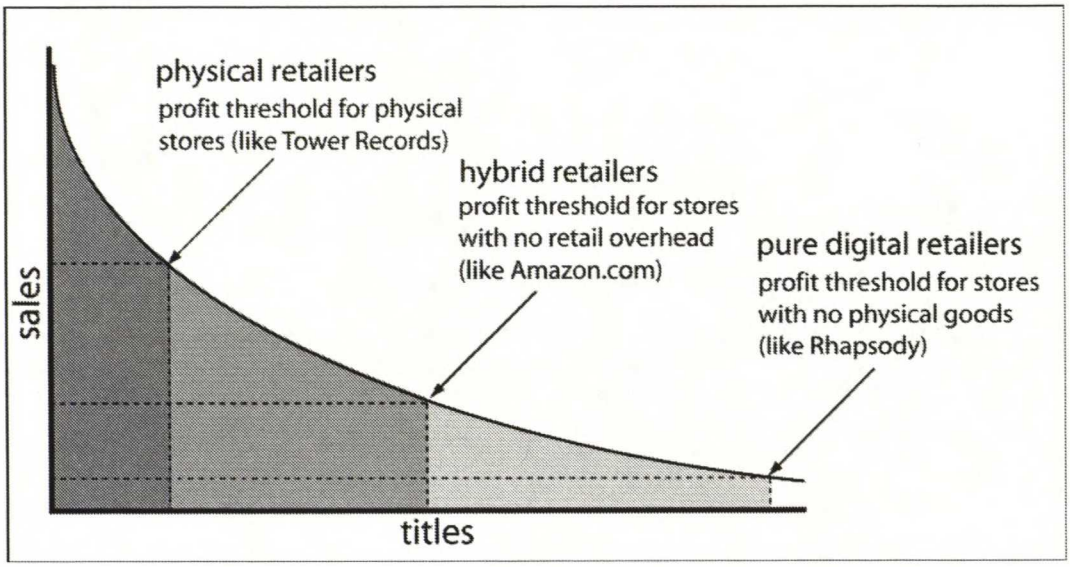

Figure 4: Retailer model and product variety (Anderson 2004)

Going further down the long tail naturally mean fewer sales – that is, when considering sales of products individually. What makes stocking low-selling niche content profitable, though, is the cumulative sum of sales in the long tail. These sales amount to a considerable proportion of overall sales of online retailers such as *Amazon*, *Netflix* or *Rhapsody*, as described in the opening section of this chapter.

Despite declining profit thresholds, the long tail variety has little justification to exist if it does not meet demand. The following chapter discusses the role of search tools facilitated by information technology. In addition, the role of new consumer activity and interaction is presented. These factors, as it will be discussed, have a critical role in connecting the new abundant supply with demand.

4. Connecting Supply and Demand

With increasing product variety, aggregating everything under one interface is only the first step. Indeed, it would only seem natural that increasing product variety correlates with rising search costs in finding exactly what one wants. These search costs are, to a great extent, non-monetary and consist of intangibles such as time and effort. Brynjolfsson et al. (2006) state that as the amount of products available increases, the harder it is for consumers to locate the product they are interested in. Furthermore, with increasing variety, consumers can in fact become overwhelmed when choices are poorly organized and thus can actually reduce their purchases as a result (Brynjolfsson et al. 2006, 69).

The forces connecting supply and demand are also the forces driving demand to the long tail. Democratizing tools of production, promotion and distribution increases the product variety in the markets and makes it, in a sense, available. But it is only when consumers are offered proper tools to search through this variety that it becomes truly accessible (Anderson 2006). And it is only then that demand is driven from hits to the niche products that satisfy individual niche tastes. In other words, it is then that the shape of the long tail curve emerges as demand is driven and distributed down the long tail.

The following chapter begins with an analysis of the impact increasing product variety has on consumer behavior and demand. Then, different search tools are described in more detail as well as their effect on demand, supply and their interaction.

4.1 The paradox of choice

"The Paradox of Choice – Why More is Less" is the title of the book written by Barry Schwartz, professor of social theory and social action at Swarthmore College. An editorial review at Publishers Weekly describes the book as follows:

> ...professor Schwartz provides ample evidence that we are faced with far too many choices on a daily basis, providing an illusion of a multitude of options when few honestly different ones actually exist. The conclusions Schwartz draws will be familiar to anyone who has flipped through 900 eerily similar channels of cable television only to find that nothing good is on. Whether choosing a health-care plan, choosing a college class or even buying a pair of jeans, Schwartz, drawing extensively on his own work in the social sciences, shows that a bewildering array of choices floods our exhausted brains, ultimately restricting instead of freeing us. We normally assume in America that more options ("easy fit" or "relaxed fit"?) will make us happier, but Schwartz shows the opposite is true, arguing that having all these choices actually goes so far as to erode our psychological well-being (Publishers Weekly 2004).

Schwartz isn't the only one coming to the conclusion that offering consumers a seemingly infinite array of choice may, in fact, result in a situation where choosing becomes nearly impossible and might have a negative effect on the consumer – not only in the actual choosing situation but also outside of it. In a study by Mick, Broniarczyk and Haidt (2004) this exposure to a vast multitude of choices is dubbed as "consumer hyperchoice". According to the study, this consumer hyperchoice can relate to both a single choice within a product category as well as multiple choices across categories. The problematic effects of hyperchoice may be e.g. the diminishment of mindfulness or attentional control. In addition, exposure to hyperchoice might result in judgmentalism, impatience and incivility. Thus, as the article states, it would seem that increasing choice might be initially attractive but ultimately unsatisfying. (Mick et al. 2004, 209)

This is contrary to traditional economic theory which holds that more choices are basically better. Maxwell's (2005) research paper "Hyperchoice and high prices: an unfair combination", examining consumer hyperchoice from the perspective of price, describes this economic theory as follows:

> Consumers make choices by calculating the benefits of each available option and selecting the one in their best self interest. From the consumer's viewpoint, more choices can therefore seem better because more choices increase the likelihood that each and every buyer can get exactly what he/she wants. More choices give the buyer greater control over his/her destiny, which is part of a basic human value of self determination (Maxwell 2005, 448).

Maxwell (2005) further explains the benefits the supply-side can realize by providing variety by describing it as a strategy that can improve a company's competitive position by better meeting the customers' divergent needs and wants. She notes that

> To capitalize on the consumers' desire for choice, supermarkets in the US now stock some 30,000 items. The Mall of America outside Minneapolis has 428 stores. Auto makers like Ford offer over 20 different models, each with long lists of options. The availability of choices extends to all aspects of consumption (Maxwell 2005, 448).

However, examining hyperchoice from the perspective of price, the study implies that a higher product price triggers a concern for the fairness of too many choices. This would seem quite understandable as a higher product price means a higher perceived risk when trying to choose exactly the right product. The research concludes that even if the price is high, it is judged fairer when the consumer is given three or seven choices rather than just one choice. However, it seems that when the judged fairness of the price dips slightly with 11 choices and plunges with 21 choices. So, when consumers are provided with so many choices that it causes consumers cognitive distress, they are more likely to judge the price unfair and less likely to make a purchase (Maxwell 2005, 453).

So, instead of being liberating, increasing variety may actually do the opposite. In extreme cases, consumers, faced with an increasing amount to choose from may, in fact, choose not to choose at all. What seems to be a critical factor lacking in this equation, is sufficient information. So, for example in the case of basic consumer goods, no matter how many different products within a product category a supermarket might stock in its shelves, the only information available to the customer is usually found in the product itself. This, in turn, is hardly ever enough for a consumer to make an informed choice for the right product. This is where concepts like brand loyalty, product awareness and "top lists" enter the picture. Without sufficient information, consumers reduce risk by purchasing products that are bought and popular among other consumers, of a familiar brand or maybe simply something that has been heavily advertised. Anderson (2006) notes that

> Most of the information that online retailers use to order their massive variety and make choice easy – popularity, comparative prices, reviews, is available to

> supermarket owners too. But they typically don't share it with you, the customer. That's because there's no good way to do it, short of a mini screen on each shelf. The paradox of choice is simply an artifact of the limitations of the physical world, where the information necessary to make an informed choice is lost (Anderson 2006, 173).

4.2 Choice in the long tail economy

In the long tail economy, product variety vastly exceeds the supply of traditional brick-and-mortar retailing. This variety is not, contrary to the situation in the hit-driven economy, pre-filtered by the supply side. Given that the long tail content consists much of low selling niche products produced both by professionals and amateurs, it is logical that searching through this content should be facilitated by tools that provide consumers with as much information as possible, guiding them to make the right choices. From the perspective of product quality, the illustration in figure 5 demonstrates the relation between the range of quality and product variety.

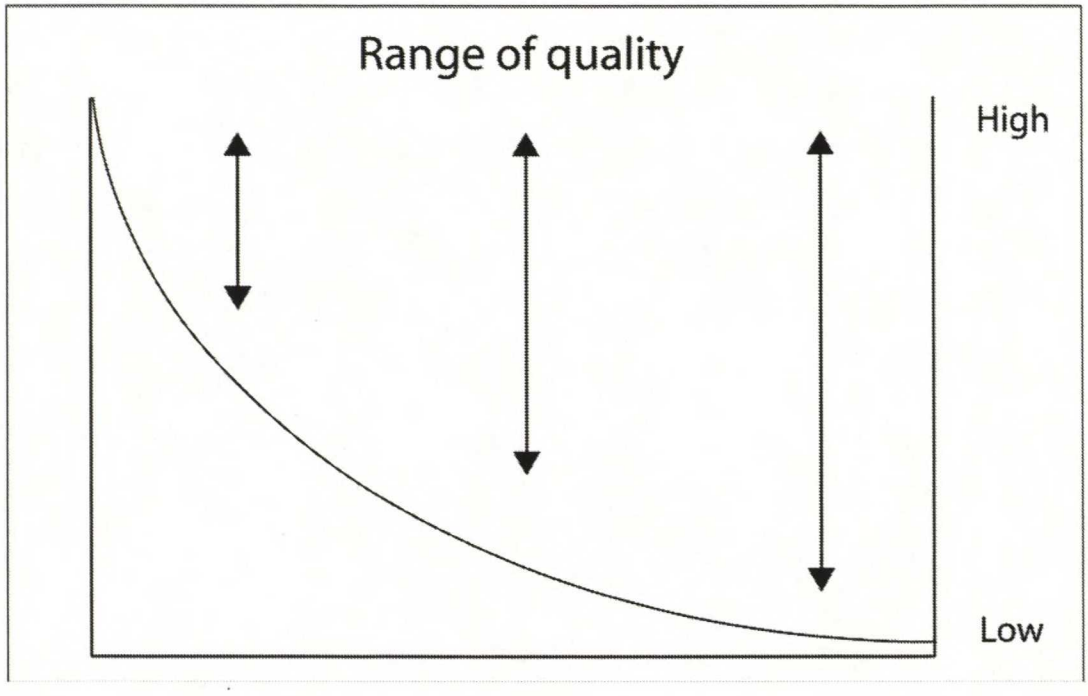

Figure 5: Range of quality in the long tail (Anderson 2006)

As it can be noted, the further one goes down the long tail content, the wider the range of quality within that content becomes. Without the need to further define the concept of quality, one can justifiably argue that as product variety increases, so does the

range of quality. From a statistical point of view, this seems inevitable. Be it noted, though, that a product in the short head isn't necessarily of high quality as a product in the long tail isn't necessarily of low quality.

As subjective as the concept of quality may be, it is better to examine the appeal to individual consumers' tastes. This way, examining the above illustration, the large variety in the long tail consists of a wide range of products which, from an individual customer's point of view, might be appealing, unappealing or somewhere in between. As mentioned earlier, the smaller variety in the short head, by definition, consists of products that aim to appeal to more general tastes and thus hold the majority of the demand. Therefore, the range of products matching consumers' tastes is also narrower. On the other hand, venturing down the long tail, the products become more specific in the sense that they appeal to more individual tastes and thus the demand for these products are also much lower.

Without proper filtering, consumers would be exposed to the whole range of products in the long tail. Indeed, consumers would have to deal with overwhelming choice ranging from low quality to high quality, from unappealing to appealing. This considered, it would certainly seem applicable that this hyperchoice would result in the various negative effects described earlier in this chapter. From an individual consumer's point of view, this situation could be examined through the notion of signal-to-noise ratio (Anderson 2006, 119).

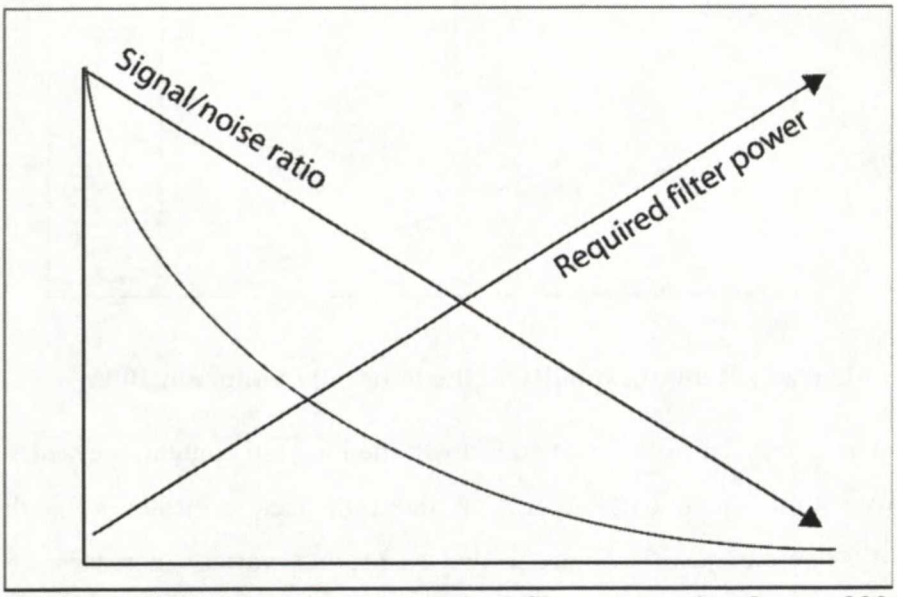

Figure 6: Signal/noise ratio and required filter power (Anderson 2006)

As the illustration in figure 6 shows, the further one ventures down the long tail, the greater the variety one is exposed to and searching for something very specific (signal) is increasingly drown in the content not matching the consumer's need (noise). To avoid the exposure to the overwhelming array of choice, consisting of what one is looking for but also increasingly of what one isn't looking for, this content has to be filtered. When going further down the long tail, the required filter power only increases, as the illustration exhibits.

Brynjolfsson et al. (2006) state that "...the Long Tail makes it critically important that retailers provide tools to facilitate the discovery of products through both active and passive search" (Brynjolfsson et al. 2006, 69). These search tools provide the filter power. They do not solely narrow down the range of choice, but they also make it as relevant as possible for the consumer and ultimately put it in order by this relevance. Furthermore, these tools do not only facilitate search, but actually enable the consumer to discover products that they weren't even looking for. This, as it will be described later, is a crucial factor in driving the demand down the long tail. The remainder of this chapter discusses the role of active and passive search tools as well as the combination of these two.

4.3 Active search tools

Search, in it traditional sense, refers to an active, goal-oriented process. Active search, by definition, requires an active role from the one conducting this search. From a consumer's point of view the Internet has become an increasingly important information source. Consumers are able to use search tools to find relevant pre-purchase product information, even if he transaction is finally executed offline. Search engines have quickly become the primary search tool, even though they did not come into public existence until 1994 (Kumar, Lang & Peng 2005, 1).

The required active role in traditional web search has some interesting implications. As using effective search tools is prone to reduce consumer search costs, especially from the perspective of time-usage, it would implicate that the decreased search costs

would result in increased search. However, a research by Johnson et al. (2004), examining search behavior within three categories (books, CDs and air travel), implies that despite the obvious benefits of reduced search costs, all of these categories showed fairly low levels of search overall. (Johnson et al. 2004)

Johnson et al. (2004) suggest that low search activity might result from the efficiency of the markets concerning the categories studied. This, however, doesn't seem to be the case. As mentioned in Chapter three, a study by Brynjolfsson & Smith (2000) concluded that prices for identical products differed, on average, by 33% for books and 25% for CDs. Thus, the evident price dispersion, even in products that are hard to differentiate, would imply that online markets for certain product categories are still far from highly efficient. Secondly, the research suggests that search costs might not be constant over time and that they can change as consumers become more experienced, shopping with a particular online retailer. Johnson et al. (2004) describe that "For example, by visiting a site, one learns its navigational scheme, which reduces the cost of using that site in the future" (Johnson et al. 2004, 301).

The problem is that active search, no matter how effective, still requires a lot from the consumer. Consumers have to develop search strategies in order to better manage the search process and to reduce search costs (Kumar et al. 2005, 1). While most previous work in economics have simply assumed that the Internet has reduced consumer search cost to near zero, the consumer search behavior, or lack thereof, suggests a different kind of situation. Searching for relevant information online can be a laborious and frustrating task, and often requires certain skills and knowledge of the search tools used.

When thinking of online search tools, one often thinks of a simple keyword-lookup, a service which is offered by e.g. the search engine *Google*. Actually, before *Google* introduced its Pagerank algorithm, finding relevant information via keyword-lookup was, to a great extent, hindered by the exploits of the old ranking model that calculated relevancy almost solely based on the frequency of the searched keyword in web pages. But even with *Google* Pagerank and the most efficient active search tools returning the most relevant results concerning a keyword, the user is still left with a task of specifying this keyword.

Tirri (2003) states that "today's Internet search engines work at a lexical level, performing string pattern matching to stored documents and augmenting the results with link analysis, frequency counting, and elementary structural analysis such as weighted title words. These engines thus provide first-level information filtering. The user, however, must still perform most of the relevance filtering" (Tirri 2003, 116). So, while it is relatively easy to specify relevant keywords and filter out the relevant results when searching for something very specific like a certain brand or a specific product, it also restricts the consumer to choose from a far narrower variety consisting of products that the consumer was previously aware of. Searching for something one might like, something that would match the consumer's taste is, on the other hand, a far more complicated task and not often achieved by simple keyword-lookups.

Semantic Web is a vision of the next generation intelligent Internet which integrates meaning (semantics) into data and thus allows more precise and automatic filtering of relevant information through algorithmic processing. This would allow computers to handle information in a more, so to speak, human-like way. Still, as Mika (2005) argues, the Semantic Web is a web for machines, but still the process of creating and maintaining it is a social one. Mika states that "[a]lthough machines are helpful in manipulating symbols according to pre-defined rules, only the users of the Semantic Web have the necessary interpretive and associative capability for creating and maintaining ontologies. Ontology creation necessitates a social presence as it requires an actor to reliably predict how other members of the community would interpret the symbols of an ontology based on their limited description" (Mika 2005, 534-35). Thus, attempting to incorporate the notion of semantics into the web architecture results in a situation where the users of the system become a critical part of the design.

As Tirri (2003, 116) points out, these Semantic Web ontologies represent a step toward semiautomatic relevance filtering, but can only employ a general notion of relevance that applies to the entire user population. Relevance, on the other hand, is person-dependent, as pointed out earlier. This person-dependent relevancy can still be only achieved efficiently through human activity, such as consumerism, and it seems that this will hold for quite some time.

So, even with a "perfect" search engine – one that would return exactly what is sought for, given a fully specified information need, wouldn't usually help simply because users are rarely able to specify accurately what they are looking for, unless they are searching for something specific. Teevan et al. (2004) have researched online search behavior and found that people, when not able to accurately specify what they are looking for, actually turned away from keyword-based search engines and, even when using them, it was usually a part of an orienteering strategy (Teevan et al. 2004, 421). Orienteering, in this context, is similar to basic web surfing, navigating the internet in gradual steps (e.g. clicking through links) in order to achieve a sometimes very vaguely-defined goal. Orienteering simply allowed users to not fully specify their exact information needs up front. This, in turn, may shed some light on the findings of Johnson et al. (2004) showing fairly low levels of search when examining the use of active search tools such as search engines or price search agents.

Still, increasingly efficient active search tools such as search engines and product sampling tools offer the consumers an efficient way to acquire relevant pre-purchase product information. Efficient search engines and especially automated price search agents (shopbots), which aggregate the price information of a certain product across a multitude of retailers, allow the consumer to efficiently make price comparisons and thus reduce risk. Furthermore, being able to sample a product prior purchasing, especially when the products can be digitalized as is the case with product categories such as music, books or even movies, further reduces this risk. However, as stated earlier, these benefits are only realized when the consumer has a fairly certain idea of what he/she is looking for.

Battelle (2005) emphasizes the role of ubiquity as a critical component of a "perfect search". Still, this means nothing if the search engine does not understand the user. Battelle proposes that a solution to this problem is in the domain of the clickstream of the user. He notes that

> Through the actions we take in the digital world, we leave traces of our intent, and the more those traces become trails, the more strongly an engine might infer our intent given any particular query. Many services have begun tracking

> our trails, and over time, I expect those trails [...] to turn into relevance gold (Battelle 2005, 255).

In the long tail economy, most of the product variety consists of content the consumer is unaware of. Finding this content, then, often requires search behavior that the active search tools mentioned here cannot (at least yet) facilitate. The answer is, as it will be explained, the increasing role of passive and active-passive hybrid search tools.

4.4 Passive and active-passive hybrid search tools

With increasing product variety, offering the means to find something of relevance to one's individual tastes becomes increasingly important. As mentioned, active search tools may efficiently facilitate the search of something that can be quite accurately defined, but they still do not suffice when searching (or exploring) for something that cannot be accurately defined, which incidentally is what the majority of the product variety in the long tail consists of. What is different with passive search tools is that they learn from the behavior of the consumer. Furthermore, they learn not only from individual consumers but from demand as whole, tapping into the wisdom of the crowds. These tools, such as recommender systems or dynamic, personalized web-based storefronts, use this knowledge to filter the consumer content that is relevant to their tastes – and thus not only relevant to a certain keyword.

Moreover, new forms of communication, facilitated by the Internet, have given birth to a network society which seems to be replacing the mass society (van Dijk 1999, 24). Consumers are forming virtual communities and sharing information more openly than ever before. This, in turn, has some very interesting implications concerning the balance of power between supply and demand.

4.5 Tapping into the wisdom of the crowds

In the article "The Long Tail", Anderson (2004) gives a good example of the power of recommender systems. He writes about a book which, when it was released in 1988, despite a number of good reviews still was only a modest success and soon forgotten.

A decade later another book on a very similar subject was released and ultimately became a publishing sensation. After this, the book, published in 1988, suddenly started selling again. Taking note of this success, the publisher as well as book retailers took action and started promoting the book. At the time Anderson's article was published in 2004, the book that found initially little demand was outselling the more recently published and very successful book more than two to one.

This, in essence, describes extremely well the power of matching supply with demand the effective way. The reason why this already forgotten book was found again was because of Amazon.com recommender system. As people were buying the more recently published book, the matching algorithms provided by *Amazon*, noted the patterns in buying behavior and suggested (or in other words: promoted) the book that would be of the most relevance to this buyers taste. And in this case, it suggested the mentioned book, which ultimately became an even bigger success.

Now, in the hit-driven economy, this book wouldn't even been available simply because the initially very modest success suggested that publishing, promoting or distributing the book wasn't economically feasible. In the long tail economy on the other hand, as earlier mentioned, online aggregators like Amazon are able to offer almost everything, including this book. Still, without properly facilitating the discovery of these products, this book would have been drowned in all the long tail variety and would hardly have ever been found.

The algorithm-based recommender system such as *Amazons* is an example of item-to-item collaborative filtering, focusing on finding similar items – yet not similar customers (Linden, Smith & York 2003). For each of the user's purchased and rated items, the algorithm attempts to find similar items which it then aggregates and recommends. Amazon.com constantly uses these recommendations as a targeted marketing tool in e-mail campaigns as well as on most of its web site's pages. Furthermore, it uses these recommendation algorithms to personalize its Web site to match each customer's consumer profile (Linden, Smith & York 2003). The paragraph-opening example shows the evident power of *Amazon's* recommender system algorithms. Still, if the system relies on categorization and descriptions, made

by somebody else than the actual consumers, it can be argued that it lacks that proper person-dependent relevance which was earlier addressed (Tirri 2003, 116).

Herlocker et al. (2000) describe the concept of "automated collaborative filtering" (ACF). They propose that ACF has numerous significant advantages over traditional content-based filtering. This is primarily because it does not depend on the error-prone machine analysis of content. The way ACF works is that the system predicts user's affinity for items of information. So, unlike traditional content-based information filtering systems like those developed using information retrieval or artificial intelligence technology, filtering decisions in ACF are based on human and thus not machine analysis of content. Herlocker et al. (2000) explain the way ACF functions as follows:

> Each user of an ACF system rates items that they have experienced, in order to establish a profile of interests. The ACF system then matches together that user with people of similar interests or tastes. Then ratings from those similar people are used to generate recommendations for the user (Herlocker et al. 2000, 241).

Matching consumers with similar interests is definitely a turn towards a more human-like discovery. Whereas information technology enables efficient, and undoubtedly crucial, tools to match these consumers, it is the behavior of these consumers that provide all the needed information to make this match. Consumers are sharing their tastes and, in a sense, becoming the new tastemakers themselves.

This is how the online music community *Last.fm* works. All of the music the users of *Last.fm* listens to, albeit restricted to the music they listen to with the computer via a couple of alternative music players, is submitted to the *Last.fm* website. The listening habits of the user then become the profiles of those users. Based on these profiles, *Last.fm* then generates each user a list of users sharing similar music tastes. From then on, a simple step to discover new music, suiting ones taste, is to explore the profiles of those other users. In other words, as opposed to matching items with items such as was the case with *Amazon*, community-based services like *Last.fm* is actually matching consumers with similar tastes. Be it noted though, that *Amazon* also provides its customers information about the consumer behavior of others by giving

information about what customers ultimately buy after viewing or actually buying a particular item.

4.6 Virtual communities and user-created content

Still, coming back to the opening example in the previous paragraph, the collaborative filtering algorithm, provided by *Amazon*, wasn't the only factor contributing to the growing demand for this book. As people bought the book and felt satisfied, they wrote their own reviews about it (Amazon publishes user product reviews). These reviews, in turn, acted as further recommendations to buy this book.

When looking at a Web page for a particular product at *Amazon*, it is evident that a surprisingly large amount of product information is actually generated by other consumers. As mentioned, *Amazon* enables users to publish their own reviews and even allows users to rate these reviews in order of helpfulness. Furthermore, users are able to exchange thoughts about any given product on a discussion forum, dedicated solely for that product. Finally, coming back to the issue of semantics, users are able to tag – or give a meaning to - each of the products. These meanings are then a part of any items product information and are, as such, shared with other consumers. These characteristics are a part of a growing number of retailers as well as online communities such as Last.fm.

Blogging plays an increasingly bigger role in consumer information sharing as well. A blog is basically nothing more than a personal web site with content displayed in reverse-chronological order (Scoble & Israel 2006, 26) Originally considered more as web-based diaries, blogs enable consumers to share product information, thus creating a new kind of information transparency, reaching well beyond the area of price transparency which, as mentioned, has been the focus of much of earlier research studying the effects of Internet retailing.

As blogs are loosely joined by hyperlinks, they actually form a kind of an emergent virtual community, dubbed as the "blogosphere" (Scoble & Israel 2006). There are 8 million to 12 million active blogs on the Internet and millions more RSS (Really

Simple Syndication) feeds, which can be thought of as portable versions of blogs or other media sites (Battelle 2006, 266). This considered, the power these emergent virtual communities hold as a vehicle for word-of-mouth, is nothing short of remarkable.

4.7 Why is the demand driven to the long tail?

Shipman (2001) describes the fundamental changes the new economy (Internet economy, information economy, long tail economy) is presenting. One fundamental change, as explained, is a decisive shift from producer to consumer power. Shipman states that "[b]uyers are portrayed as having unprecedented power to avoid goods and services they do not want, shape those they do want to individual taste, and shop around for the best price-quality combination". He continues by explaining that "this shift from product push to consumption pull is closely connected with the arrival of new information and communication technology (ICT), allowing previously isolated buyers to share information and pool purchasing power with one another, and to shop around for better deals with unprecedented speed and scale" (Shipman 2001, 331-32).

In his blog "The Long Tail" (www.longtail.com), Anderson describes the Web as becoming the greatest word-of-mouth amplifier in history. The economy is facing a shift from secrecy (or restricted information sharing) to transparency. Now that consumers share their post-purchase experiences of any given products, businesses loose power to influence consumers by means of e.g. marketing. In fact, it can be argued that the best way for businesses to promote goodwill is through sharing of information as openly as possible, even engaging in conversations with the consumers, as many companies now also use blogging themselves (Scoble & Israel 2006,).

Concepts like customer reviews, comments, tagging, recommendations and blogging, to name a few, are all critical elements of the new post-information revolution economy. As product information transparency is now more and more in the hands of consumers themselves, the pre-filters of the hit-driven economy become the post-filters of the long tail economy. Demand, as opposed to supply, lack the financial incentives that would drive it to promote and share information about only certain

kinds of products, or doing this selectively. This way, the product information, coming straight from the consumers, is thought to be, in a sense, more reliable. In addition, it can be argued that as traditional push marketing loses power to consumers, the quality of a product plays an increasingly important role. This is because demand-driven word-of-mouth marketing relies on the post-purchase experiences of consumers rather than promises (marketing) from the supply-side.

Furthermore, as consumer word-of-mouth represents a powerful marketing vehicle of its own, any product, appealing to general tastes as well as specific niche tastes, can be promoted without discrimination through this marketing vehicle. Thus, passive and active-passive search tools both raise initial awareness for any given product but also, through positive or negative feedback, either increases or decreases the popularity of this product. Recalling that product variety in the long tail economy is abundant, in theory, every product from almost every product category can be a part of this feedback loop.

A study, focusing on the distribution of revenues across products in the context of the U.S. home video industry for the 2000 to 2005 period, concluded that online retailing appears to have affected the sales distributions, shifting sales from the head of the distribution to the tail. During the time period, the number of titles that sold only a few copies every week increased almost twofold. Still, at the same time that hits as a category generated fewer sales, the number of non-selling titles rose rapidly and was, at the end of the study period, four times as high as in 2000 (Elberse & Oberholzer-Gee 2006, 1).

Although these findings have been used as counter-arguments to the long tail phenomenon, they actually effectively exhibit the power shift from supply to demand. Through consumer word-of-mouth, the hit-products, still alive and well, face an increase in demand as the positive feedback loop kicks in. At the same time, products that are, for one reason or another, not selling, quickly face no demand at all as a result from a negative feedback loop.

The important thing to notice is that, in the long tail economy hits do not cease to exist. Still, the demand for products, hits of niche products, is dictated to a great

extent by the demand itself. This considered, the evolution of a product becoming a hit or a non-selling "miss" is changing.

The following chapter focuses on further explaining how networked consumers are gaining control over the information in the markets, resulting in increased market transparency. The remaining chapters in this thesis also analyses how these trends translate into increased power consumers hold over the supply-side. Finally, the impact of consumer empowerment is examined from the perspective of market success.

5. Information and Virtual Communities

In his book "The Network Society", Van Dijk (1999) explains a shift from a mass society and organic (traditional) communities to a network society consisting of both traditional and virtual communities. He notes that "The growing importance of networks for modern society is expressed in the spread of both social and media networks supporting each other". Furthermore, Van Dijk argues that traditional face-to-face communication is replaced or supplemented by mediated communication. For this purpose, a multiplicity of interpersonal and mass communication is used. In addition, the rise of ICT gives a new impulse to this multiplicity and arising forms of communication between interpersonal and mass communications lead to the emergence of virtual communities (Van Dijk 1999, 24-26). Figures 7 and 8 illustrate the structures of mass and network societies.

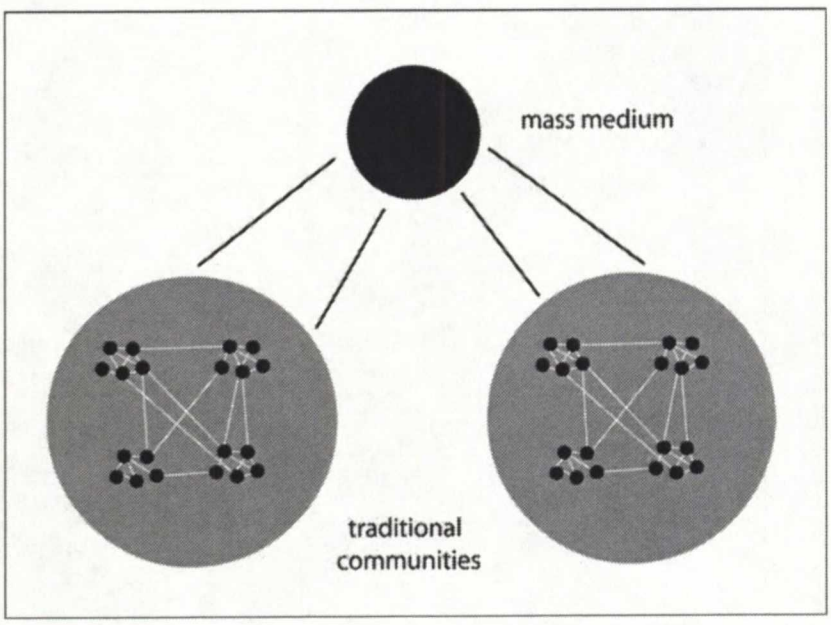

Figure 7: Mass society structure (Van Dijk 1999)

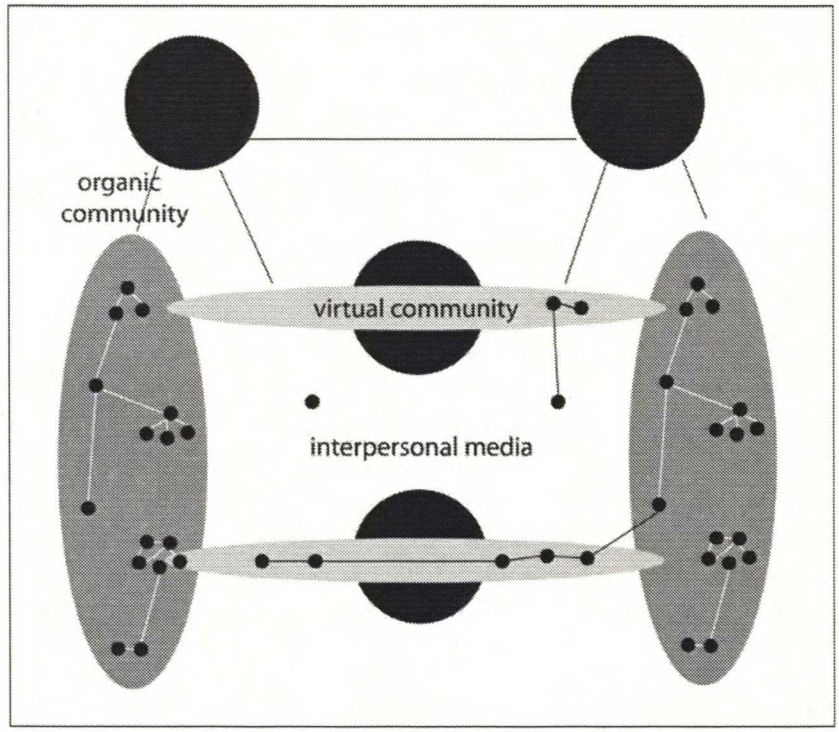

Figure 8: Network society structure (Van Dijk 1999)

Looking the structure of a traditional mass society, as illustrated in figure 7, it is evident that while communication occurs within different communities, these spatially and temporally bounded communities are connected to each other only by the means of one-to-many mass media. In figure 8, illustrating the structure of a network society, virtual communities emerge between communities that break free from the initial spatial and temporal boundaries. Furthermore, communication within and between these communities is conducted both through mass media as well as interpersonal media.

The notion of a virtual community has emerged already more than three decades ago with the early applications of "Electronic Information Exchange Systems" (EIES). Basically, EIES was designed to coordinate dispersed research communities and allowed people to exercise a collective intelligence capacity through computerized conferencing (Balasubramanian & Mahajan 2001, 104). These research communities were not bound together by space and time and naturally did not rely on face-to-face communication, which, in turn, are the basic characteristics of traditional communities.

Today's Internet holds a multitude of forms of computer-mediated communication (CMC) which combine both interpersonal and mass communications – that is, communications in the form of one-to-one, one-to-many and many-to-many. These include, among others, different online forums (bulletin board systems), social networking sites and – the latest growing trend – blogs. Furthermore, communication on the Internet has evolved from purely textual to include different forms of multimedia such as audio and video. Kozinets (1999) states that

> Networked computers and the communications they enable are driving enormous social changes. Networked computers empower people around the world as never before to disregard the limitations of geography and time, find another and gather together in groups based on a wide range of cultural and sub cultural interests and social affiliations (Kozinets 1999, 253).

Indeed, during the eight years after the release of the cited article, the communicative aspect of the Internet, driving these social changes, has evolved dramatically. As this thesis argues, from the perspective of economics, this social aspect has a significant impact on consuming and thus, on the economy in general.

5.1 Nature of supply-side information

In the pre-Internet era, consumers have had little choice when acquiring information concerning the products they purchase and consume. Information driving consumers' decisions – namely information about products, brands or companies – have traditionally, to a great extent, been in the hands of the supply-side. Consumers have had the possibility to acquire product information by either actively searching for relevant information or by passively receiving information through push marketing. Either way, the main source for information that should aid consumers has traditionally been controlled by the ones who primarily have the financial incentive to get a product sold.

Supply-side power over product information results in at least three problems that may inhibit the consumer from making an informed purchase decision. The first two have been addressed by Milgrom and Roberts (1992) who describe supply-side information as being potentially both incomplete and asymmetric. Product

information, coming from supply-side marketing, may be considered unreliable in the sense that the initial goal of marketing is naturally to get a product sold. That is, information, held and given by the supply-side is primarily driven by financial incentives and thus can be considered to aim more to get consumers to buy a product rather than giving them sufficient and relevant information to make an informed decision whether the product transaction to be made really satisfies the consumer.

As Rezabakhsh et al. (2006) argue, businesses, signaling information about their products, prices, services and terms of trade, aim to influence consumer buying behavior and thereby ensure the business's market success. Basically then, businesses are tempted to communicate only information that will make them and their products appear in a favorable light. Thus accordingly, as Rezabakhsh et al. continue to state, "...biased information about the company and its offers is communicated to the market" (Rezabakhsh et al. 2006, 8).

The third problem concerning supply-side power over information has been briefly addressed in chapter four and concerns with the lack of relevancy supply-side product information has to consumers' more individual needs. From the perspective of an individual consumer, product information, marketed through traditional one-to-many mediums, rarely bears sufficient relevance to ones individual tastes and needs.

Recalling that in the traditional brick-and-mortar market environment, it is the products that are anticipated to sell the most that get the exposure through mass mediums, the products as well as the information is mainly aimed to attract as big of a demand as possible. Thus, it is not only the majority of products offered in the pre long tail era that have ignored the more specific niche tastes of individual consumers but also the information given about these products.

This, in turn, is the result of the monopoly that mass media have traditionally had on information dissemination, which was addressed in chapters one and two. Consequently, even if the amount of product alternatives in the markets increase, as mentioned is the case in the long tail economy, supply-side information, pushed through traditional mass media channels, is not sufficient to aid consumers to make informed decisions on product purchases that would satisfy more individual tastes and

needs. Furthermore, as product variety in the markets increase, the need for specific, individually relevant information increases accordingly.

5.2 Nature of demand-side information

Sources of demand-side information – or information from a consumer to consumer – have traditionally been sparse. The benefits for the consumer over supply-side information are still evident. First, information, shared between consumers, at least in most cases lacks the biases that characterize supply-side information. As consumers are ultimately peers and on the opposite side of supply, they supposedly lack the financial incentives to influence consumer buying behavior.

Another benefit over supply-side information is the possibility to acquire knowledge that is relevant to consumers' individual needs and tastes. Naturally, this requires that consumers have knowledge of the consumer's specific tastes they are giving information to. Traditionally, this setting is present in traditional communities, usually between family and friends who either share, or at least have knowledge of the tastes and interests of others.

Yet, while consumers within traditional communities may have knowledge of other consumers, the information they possess about products, brands or companies should ultimately reflect their experiences or the experiences of other consumers, communicated through word-of-mouth communication, in order to differ it from biased supply-side information. The amount of experience based information they possess is then determined directly by their consumption or the consumption of their peers.

Thus, the possibility to gain relevant product information through traditional word-of-mouth communication within the boundaries of a traditional community is restricted by 1) the amount of peers that are relevant to a consumer in terms of shared interests and tastes, 2) the amount of experience based information on products, brands, or companies that each of these peers possess.

5.3 Market transparency and demand-side information

Internet, along with computer-mediated communication has changed, and is changing both the balance between supply- and demand-side information as well as how this information is disseminated. This is not only because of technological advances but also because of changes in consumer behavior online. Internet does not only provide consumers with tools to search for information but also enables them to provide and share it.

Internet has brought along an overall increase in market transparency. Market transparency is defined as "the level of availability and accessibility of information to potential consumers about the transaction-making and exchange process and the product that is purchased, including prices and quality levels" (Granados, Gupta & Kauffman 2003, 1). Market transparency can further be divided into price, product and supplier transparency.

Much of recent research on market transparency has focused on explaining the increased market transparency with reduced search costs concerning prices as well as non-price information. Yet, much of this research has neglected to draw a clear distinction between supply-side and demand-side information. Transparency has traditionally referred to the extent to which a *seller* reveals private information to the consumers (Granados, Gupta & Kauffman 2003).Thus, product information, coming from the demand-side, has not originally been considered to have a meaningful impact on market transparency.

Rezabakhsh et al. (2006, 13) state that the Internet has positively influenced the three following key factors that determine market transparency. These are as follows:

1. Customer's information search behavior (the Internet enables and often encourages consumers to engage in an active information search in the pre-purchase phase)

2. Corporate information disclosure policy (as a consequence of the low cost of presenting information, firms are encouraged to give more detailed information on their products' attributes such as price and technical features)

3. Third party communication (institutions such as consumer organizations can now efficiently communicate with a much larger circle of consumers)

While all factors presented above influence market transparency, one crucial factor, affecting this transparency is missing; direct communication between consumers. Rezabakhsh et al. (2006, 13) suggest that market transparency is increased as a result of the supply-side giving more detailed information on their products and their attributes. Yet, as explicated previously, there are reasons that inhibit the supply-side from giving out unrestricted (and unbiased) information. While communication between e.g. consumer organizations and consumers does increase the overall market transparency, it is the direct communication between consumers that creates complementary demand-side information.

The argument of this thesis is that a more comprehensive market transparency is achieved when consumers have unrestricted access to, not only price and non-price information but also specifically to information that comes from other consumers and is thus both potentially unbiased as well as relevant from the perspective of an individual consumer. This requires not only tools that reduce search costs for consumers but also tools that enable consumers to ensure that this kind of information exists and is available.

Computer-mediated communication (CMC), combining both interpersonal and mass communication is the tool for consumers to share information in the long tail economy. As Dellarocas (2003, 2) describes it, the fundamental aspect in which the Internet (and computer-mediated communication) differs from traditional mass communication is its bi-directional nature which has enabled individuals to make their personal viewpoints and opinions accessible to the global community of Internet users.

As mentioned in the previous paragraph, in the pre-Internet era, sharing personal thoughts and opinions has been restricted to local, spatially and temporally bounded communities. Likewise, acquiring information of this nature has faced the same restrictions. However, the network society of today does not face these restrictions. As (virtual) communities basically become global by nature, the amount of consumers sharing similar interests and tastes and consequently the amount of experience based post-purchase product information, coming from these networked consumers, is increased dramatically.

Consumers today are able to choose what channels to use to acquire necessary information to make informed decisions. Most importantly, consumers can make the choice between supply- and demand-side information. Unrestricted access to this information, especially from the perspective of product transparency, is a necessity as it enables consumers to gain power from the supply-side, effectively leveling the playing field between the two.

Pre-internet information sharing has not been possible in such a scale that would have a considerable impact on the quantity and quality of information in the markets. Supply-side information, on the other hand, has had access to the wide-reaching channels of mass media, making it the dominant form of information in the markets. This partly explains the absence of demand-side information as a factor of market transparency in previous research.

Explaining the restrictions in the old (pre-internet) economy, Rezabakhsh et al. (2006) state the following:

> As consumers lack a wide-reaching network for information exchange, they are mostly unable to share their (positive and especially negative) consumption experiences with one another. As a result, the knowledge of experienced buyers hardly reaches inexperienced customers. Furthermore, information gathering and processing cause considerable costs (e.g., travel costs, opportunity costs) that often surpass the benefits of thorough pre-purchase information procurement (in the form of price reduction, improved decision quality, reduction of buying risks) (Rezabakhsh et al. 2006, 8).

As mentioned, to date, this wide-reaching network for information exchange exists. Furthermore, as the remainder of this chapter aims to explain, an increasing amount of consumers, given the opportunity, are willing to share their consumption experiences. The evolving culture of information sharing among consumers online along with increasingly sophisticated tools that facilitate this sharing result in reduced search costs of demand-side information. This, in turn leads into a state of market transparency that is driven by experience based post-purchase information shared by consumers themselves.

5.4 Defining Virtual Communities

Defining the concept of a virtual community has been, in many ways, problematic. This is largely because the definition of a traditional community contains requirements of shared proximity as well as a degree of common experience and common interests. As Watson (1998) argues, spatial or temporal proximity of communicants is almost never a part of computer-mediated communication over the Internet. Thus, traditional definitions preclude the recognition of online (virtual) communities because it does not connect a conception of community to its most closely related word "communication" (Watson 1998, 103).

In today's online world, on the other hand, the definition of a virtual community emphasizes the notion of communication. Dennis, Pootheri and Natarajan (1998) characterize virtual communities as communities of people with shared interests or goals for which electronic (computer-mediated) communication is the primary form of interaction. Thus, the term "virtual" is derived from the fact the primary interaction, within these communities, is electronic or enabled by technology (Ridings & Gefen 2004).

Another aspect that is repeatedly referred to in studies concerning virtual communities is one of a shared objective, a shared property/identity or a shared interest (Balasubramanian & Mahajan 2001). Ridings et al. (2002) note that virtual communities are typically emergent by nature and arise as a natural consequence of people coming together around these aforementioned shared issues. Similarly, Gubta

and Kim (2004) state that virtual communities are places on the web that enable people to find and then communicate with others with similar interests.

Nevertheless, as Watson (1998) argues, "Community depends not only upon communication and shared interests, but also upon 'communion'" (Watson 1998, 104). Indeed, an earlier definition of a virtual community by Rheingold (1993) argued that virtual communities can be considered as communities when public discussions are carried on long enough, with sufficient human feeling, to form webs of personal cyberspace-relationships. Similarly to the definition by Rheingold (1993), Culnan (2005) suggests that communities emerge when sufficient relational cohesion is created. This relational cohesion, in turn, "results from exchanges that result in trust (uncertainty reduction) and positive emotions" (Culnan 2005, 5).

As the focus in the present context is on consumer interaction, communication and relationships and their impact on market transparency and ultimately consumer power, examining social structures like virtual communities is highly relevant. Computer-mediated communication, combining both interpersonal and mass communications, facilitates the emergence of networks of consumers. Although only a fraction of web users participate in virtual communities in ways that characterize the stronger notion of communion, the impact these communities have, reach well beyond the boundaries of the actual, active community members.

5.5 Levels of trust and commitment in virtual communities

From the perspective of available demand-side information, generating, exchanging and disseminating information in virtual communities plays a crucial role. Yet, only a fraction of web users engage in these activities. The majority, commonly dubbed as lurkers, are defined, from the perspective of computer-mediated communication, as being passive and negative in their behavior. This means that lurkers engage in participation in such a limited way that they prefer to be readers rather than writers and thus do not engage in the actual communication.

The estimates of the proportion of lurkers within these communities vary from study to study. Nonnecke and Preece (1999) estimated that lurkers-to-posters ratio run as high as 100:1 and possibly even higher in some communities. In a more recent study, Chen (2004) refers to an estimate according to which about 10% of all web users involved with virtual communities take part in the communication within these communities. Be it as it may, the difference between the number of participants and those who do not participate remains significant.

As regarded from the perspective of consuming, a distinction between four relevant types of web users is presented that, in one way or another, make use of virtual communities online. These user types differ in the level trust they have on the information within these communities as well as in the level of commitment to these communities. These two dimensions are surely not mutually independent but, nevertheless, analytically distinguishable. Figure 8 illustrates this user typology.

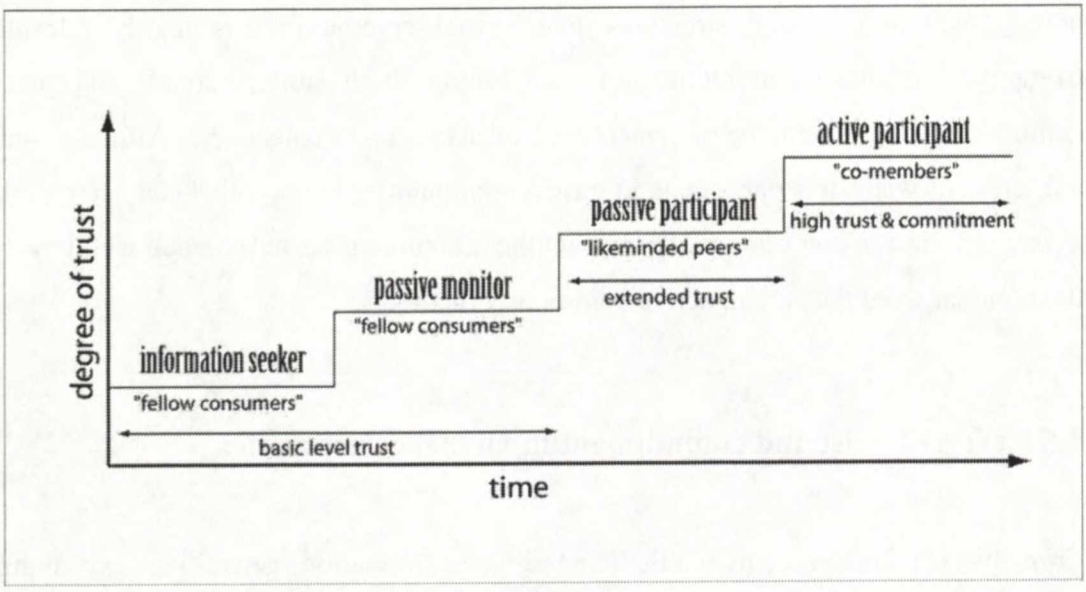

Figure 8: Virtual community user typology

The bottom level in figure 8 describes the basic, goal-oriented, information seeking consumer. In this type, the consumer, while seeking for any given information comes across a virtual community and may then choose whether or not to acquire any further information this community has generated.

The second level describes a more impulse-driven consumer that, when encountering a community of interest, may choose to passively monitor the community for a chance to come across any information that might be of interest to this consumer. As opposed to the goal-oriented, active information seeker, a consumer of this type is not necessarily seeking anything clearly defined. Yet, this user may recognize a virtual community as a potential source for relevant information and thus may, as mentioned, passively monitor the discussions within this community. This type of consumer can be defined as being open to impulses. These impulses, rather than giving information about something clearly defined, may actually aid the consumer to define what (s)he is actually looking for. In this sense, this kind of information resembles information that algorithm-driven recommender systems provide.

The first two levels represent the basic level of trust. This trust comes solely from the division between supply- and demand-side information. In other words, information, generated by these virtual communities, comes from peers and *fellow consumers* and, as such, may be perceived as more trustworthy as opposed to supply-side information. The level of commitment in the first two levels is practically non-existent. This means that for these user types, virtual communities are solely of instrumental value – for receiving information.

The third level represents a user that, with time, recognizes that the community he is monitoring generates information that is relevant to his/hers own tastes, needs or interests. They gain trust in the community as they begin to recognize *likeminded users* with similar interests. As the possibility to acquire relevant information increases, the consumer may take a passive role in the community by reading the discussions as well as posting questions in order to acquire any further information that might be of relevance. On the third level, the trust in the community has grown due to the notion that, at least part of the members are regarded as *likeminded peers* sharing similar interests as the consumer. The weaker form of commitment to the community is exhibited through the passive participation of acquiring information.

The fourth level represents the *active member of a community*. As such, these users represent the characteristics that define communion in studies concerning virtual communities (Watson 1998; Rheingold 1993; Culnan 2005). These *community*

members have a strong commitment and trust to the community and actively engage in discussions.

This four level typology does not only describe the ways consumers make use of the information generated by virtual communities. It also aims to illustrate how consumers can become virtual community members even if their initial role is only to find specific information. This means that the time dimension (in Figure 8) is conditional: time itself does not create community-like relationships but it takes time for a community to emerge, provided that other necessary factors are present (cf. Rheingold 1993; quote above, p.53)

Furthermore, this typology explicates what the impact of publicly available information, generated by these communities is. As long as consumers have unrestricted access to this information they have the possibility to find communities that are relevant to their interests and further, to find relevant information that may aid them make informed decisions.

5.6 Active and passive participation in virtual communities

Online discussion forums, newsgroups, and blogs all represent forms of interaction between online users. While a part of the web population become involved in them in a way that defines the interactions in a virtual community, a majority of web users and virtual community participants, as has been explained, take a more passive role. Nevertheless, as mentioned, the information these communities generate is mostly available for anyone, regardless of their role.

The fact that these forms of social interactions are usually built around a shared objective, a shared property/identity or a shared interest, as stated by Balasubramanian & Mahajan (2001, 108), means that individual consumers, interacting with likeminded peers, have the possibility to find relevant information. As vehicles of word-of-mouth, the information these social structures hold consists of any "informal" information that concerns the ownership, usage, or characteristics of

particular goods and services or their sellers, as Westbrook (1987) describes in his definition for word-of-mouth communication.

Furthermore, as Kozinets (1999) states, millions of consumers are forming into groups. Moreover, many of these groupings are implicitly and explicitly structured around consumption and marketing interests. Virtual community of consumption, as Kozinets (1999) describe, is "a specific subgroup of virtual communities that explicitly center upon consumer-related interests. They can be defined as "affiliate groups whose online interactions are based upon shared enthusiasm for, and knowledge of, a specific consumption activity or related group of activities" (Kozinets 1999, 254)

While these manifestations of online communications between consumers are a vital element in both generating and disseminating demand-side information, the majority of consumers, as mentioned, do not engage in these activities. As Ridings et al. (2002) note, there are basically two modes in which individuals can use a virtual community. They state the following:

> ...they [community members] can either get information or give information. Getting information is simply reading the ongoing conversation in the community, as well as actively soliciting information by posting questions and comments. Giving information, on the other hand, is done by posting conversation, either in direct response to another member's post or simply starting a new topic in the community by posting commentary. Overall then, giving information thus involves a greater measure of active participation and exposure (Ridings et al. 2002, 274).

While, as mentioned, the active participants of virtual communities play a crucial role in both generating and disseminating information, the majority of participants take the passive role of getting information. What is to be noted, though, is that the definition of getting information by Ridings et al. (2002) does include the actions of posting questions and comments. Thus, while the initial goal is to get information rather than provide it, posting publicly questions and comments and getting them answered does create new information. Furthermore, as the majority of the information generated by these communities is publicly available, all participants can access it by both active and passive search behavior.

5.7 Virtual communities and search behavior

The division between active and passive behavior within virtual communities explains the actions web users take when participating in these communities. Yet, majority of web users never become actual participants of these communities. By actively searching for specific information, web users have a good possibility to find information generated by virtual communities. The division between active search and passive monitoring explains the ways web users can acquire information from these communities without actually participating in them.

Research by Savolainen (1995) on search behavior, explains the characteristics of everyday life information seeking (ELIS) by dividing ELIS into the following two dimensions:

1. Practical information seeking and
2. Orienting information seeking

The first dimension, as described by Savolainen (1995), concerns with a goal-oriented approach where searching is aimed at finding specific information with specified questions or keywords. The second dimension represents a more general activity that allows people to monitor the world for any information that may be related to their ongoing interests and concerns.

Similarly to Savolainen's (1995) typology, Peterson and Merino (2003), studying consumer information search behavior on the Internet, divide external information search into activities that are

1. Pre-purchase, goal-directed, or problem-solving activities and
2. Continuous, regular, general, or ongoing activities

Peterson and Merino (2003) continue by stating that "[m]ost research on external information search has focused on consumers' conscious efforts to acquire information for specific purchases, with the general purpose being to reduce uncertainty or risk" (Peterson & Merino 2003, 102). However, as the argument goes

in the present thesis, it is equally important to examine the aspect of passive search behavior. This is because passive search behavior is supported by passive and active-passive search tools, such as the forms of social interaction between consumers discussed here, giving consumers the opportunity to gain relevant information even when not actively seeking it.

Active search puts the consumer in an active role. This means that in consumers must have a fairly good idea of what kind of information they are looking for, prior to actually conducting the search. Brynjolfsson et al. (2006) state that active search tools, e.g. a keyword based search engine such as *Google*, allow consumers to locate products which they knowingly have an interest in. Still, consumers do not solely use active search tools to find specific products but, as importantly, use them to find product information that aids them to make an informed purchase decision.

What is to be noted – and what has been emphasized in this chapter – is that consumers, when actively searching for products or product information, have the possibility to find information generated by discussions between consumers on e.g. online discussion forums, newsgroups or blogs. *Google's* Pagerank-algorithm, for example, ranks search results in order of relevance. This relevance, in turn, is not only determined by occurrences of the searched keywords in the resulting web pages but also by the quantity of links leading to these web pages.

Thus, active search tools such as *Google*, do not, per se, favor supply-side information over demand-side information. Furthermore, as the majority of linking between web pages is conducted by web users themselves, it is their actions that, to a great extent, dictate what consumers find when they actively seek for information. Coming back to the example concerning blogs, as described in chapter four, blogs are usually interconnected via hyperlinks, thus forming a network of blogs, or a "blogosphere", thus, any information that is put in blogs and linked throughout the "blogosphere" gains notable exposure with active search tools such as *Google*.

As Anderson (2006) puts it "Dell spends hundreds of millions each year on promoting its quality and customer service, but if you Google "dell hell" you'll get 55,000 pages of results. Even the word "dell" returns customer complaints by the second page of

results" (Anderson 2006, 99). Yet another good example is that when searching for dictionary definitions, more than often, *Wikipedia*, an online dictionary maintained by regular web users, is among the top results on Google's result page. This is simply because, in relation to the search word given, Wikipedia's pages are among the most linked ones. In other words, consumers have not only gained control over the information that is disseminated but also on the exposure this information gets.

Active search can serve as the first step for consumers to find virtual communities that are able to offer them any relevant information concerning their interests and needs. The second step, becoming a passive monitor of these communities, is then about the consumers, when finding a relevant source, controlling the amount of information they are exposed to as well as increasing the likelihood that the information they acquire is of use by including these relevant communities in their information environment.

So, consumers can also acquire information passively by monitoring the discussions within virtual communities that are relevant to their interests, tastes and needs. Described as the latter dimension in the search behavior typologies of both Savolainen (1995) and Peterson and Merino (2003), consumers can gain relevant information by passively, yet regularly monitoring the activities of relevant virtual communities.

By monitoring virtual communities formed around e.g. single or multiple product categories, products or brands that are relevant to the consumer, he/she can control the amount of information he/she is exposed to. Having control over the information environment becomes crucial when both the product alternatives as well as the information about the attributes of these products increase. As noted earlier, by monitoring (or lurking in) virtual communities that are formed around a certain subject, the consumer may find it easier to be exposed to information that is relevant.

Furthermore, as mentioned, Savolainen (1995) describes orienting information seeking as being an activity that allows people to monitor the world for relevant information. Virtual communities can then be considered as fragments of this world,

made manageable – from the perspective of creating boundaries for this information - for the consumer.

Chapter four discussed the characteristics of passive search tools such as recommender systems. These tools provide consumers relevant information by using information that consumers passively submit about them. The main purpose is to give consumers recommendations, or impulses, about products that, considering their previous purchases or e.g. information search patterns, are relevant to these consumers' tastes and interests, hence the name recommender system. As noted, these search tools are increasingly important because of the growing amount of product alternatives in the markets.

As the amount of product alternatives increases, so does the amount of information concerning the attributes of these products. In their research article "The Effect of Information Overload on Consumer Choice Quality in an On-Line Environment", Lee and Lee (2004) note that "[t]he information-rich nature of the online environment can easily become a trap for information overload to occur". They further state that "[i]n their efforts to attract consumers, retailers and manufacturers strive to provide ever-increasing amounts of product information via the Web" (Lee & Lee 2004, 160).

Fasolo et al. (2007, 14) argue that the problem of too much choice has been mostly rooted in the number of options presented to decision makers. Yet, there is a second source of choice overload: the number of attributes. Indeed, as chapter four explained, the problems of choice overload are very much present in the long tail economy. While passive search tools such as recommender systems successfully filter the amount of choice to individual consumers to consist of only the most relevant alternatives, they do not necessarily provide consumers with relevant information concerning the attributes of these alternatives.

Furthermore, even when retailers and manufacturers attempt to push increasingly more attributal information in the markets, rather than making decision making easier for the consumer, the result may be the opposite. First of all, as pointed out earlier, supply-side information, aimed at an audience, lacks the relevance to individual consumers, in the sense referred to in the typology above (see Figure 8, p.54). As

Fasolo et al. (2007) point out, "[c]onsumers' perceptions of attribute importance can vary widely from equal [...] to highly skewed [...] Being inherently subjective, the judgment of relative importance of a set of attributes can differ from consumer to consumer" (Fasolo et al. 2007, 16).

By either actively searching or passively monitoring virtual communities of any given subject, consumers can receive not only information and impulses about new product alternatives but also about the different attributes of these products. Rather than just consisting of specifications, the information, provided by virtual communities comes from multiple sources (i.e. all the active participants) and is also largely experience based.

Similarly to the previously mentioned recommender systems, the power of virtual communities comes from the fact that:

1. They enable consumers to filter and manage the information they are exposed to

2. The information they generate is potentially more relevant, unbiased and complete

3. They create awareness for product alternatives that consumers initially are not aware of

While only a minority of web users actually actively engages in the generation and dissemination of information in virtual communities, the fact that this information is, to a great extent, publicly available means that it has a profound impact on the balance of supply- and demand-side information on the Internet. This, in turn, as the next chapter aims at explaining, translates into an increase in consumer power and further impacts the way demand is distributed along the online product curve.

6. Consumer Power and Demand

In the article "The Internet, consumer empowerment and market strategies", Pires (2006) notes that

> From a consumer perspective, access to more information about the market is complemented by larger choice sets due to the global reach of the Internet, by the ability to exchange information and opinion with peers, to change their perceptions and behavior in a rapid and largely unchecked manner, and to define brands on their own [...] Since, consumers with more knowledge will feel more powerful , the realignment of competitive focus towards consumers' subjective valuations also pushes consumer-driven production processes , with potential implications for the power relationships between consumers and suppliers (Pires 2006, 937).

This citation does a good job of summarizing what the long tail economy and network society are about. Chapter three explained the shift from scarcity to abundance – or the dramatic increase in product variety on the online markets. Chapters four and five focused on the ICT-enabled search tools and consumer interactions that have revolutionalized the way information is generated as well as disseminated. This, in turn, has resulted in a shift of balance between supply- and demand-side information in the markets.

These trends translate into an overall increase of power consumers have over the suppliers. The supply-side has lost its monopoly position on the traditional chokepoints of production, promotion and distribution. At the same time, consumers have gained access to an unfiltered, unrestricted array of product alternatives, control over the information concerning these alternatives, and even the possibility to take a more active role in the innovation of new products. To put it in other words, consumers have gained more control over, not only what is offered, but also how demand is distributed over the entire product variety.

The hit-driven economy has been all about supply-side control over the products offered (pre-filtering and hit-focus) as well as the information (push marketing and

mass media monopoly). The long tail economy, on the other hand, is about unrestricted choice and access to product alternatives and information.

6.1 Sources of consumer empowerment

As emphasized, the key sources for increasing consumer power are product choice and information. As Jenner (1994) has noted

> [a]n expansion of consumer choices also increases the power to choose products which best satisfy their objectives. The growth in variety of affordable substitutes…means that consumers do not have to accept or 'take' a product that has features or qualities they do not like. Quite clearly, this represents a substantial increase in consumer power (Jenner 1994, 15).

In addition to increased choice, consumers have access to vast amounts of information. Lindbeck and Wikström (1999) argue that an increased information level of consumers in the Internet age has three major implications for their market power

1. Comparative price information will allow households to make price savings and increase price competition among firms;

2. Households will be better informed as to how well the available product varieties fit their individual preferences;

3. Consumers' heightened level of information about the real quality of products will foster the market success of high-quality products and push producers of low-quality products out of the market in the long run.

The first point by Lindbeck and Wikström (1999) represents one of the most emphasized sources for Internet-enabled price and market transparency in recent research. However, as explained in chapter three, the possibility of finding specific, individually relevant products exceeds the perceived benefits of lower prices due to intensified price competition online. As the findings of Brynjolfsson et al. (2003) show, the increased availability of products, not originally available on brick-and-mortar markets, has an impact on consumer surplus that is seven to ten times more significant than lower prices (Brynjolfsson et al. 2003). Furthermore, as Brynjolfsson

and Smith (2000) concluded, the level of price dispersion on the Internet has still been surprisingly high.

These findings suggest that, from the perspective of consumer empowerment, a far more impactful type of information is not necessarily price information, but the information about product alternatives and their attributes. As the second point on the list of implications by Lindbeck and Wikström (1999), Internet has enabled consumers to gather vast amounts of attributal information concerning the available product alternatives. More importantly, the information via recommendation systems and virtual communities can aid the consumer, as explained, in finding products that fit their individual preferences.

The most interesting point that Lindbeck and Wikström (1999) make concerns with the control consumers have over the market success of products. As they point out, consumers, better informed of the true quality of the products in the markets, have the power to affect the market success of products via their purchase and nonpurchase decisions. While it seems predictable that low quality products, entering the markets, would quickly meet no demand as consumers became informed of the true quality, this would not be the case if not for information that would signal it. This information, in turn does not usually come from the supply-side, simply because of the nature of this information. This is due to the fact that if the aim is to get a product sold, the information, provided by the supply-side does not consist of comprehensive information that would suggest that this product is of inferior quality.

As the latter part of this chapter aims to explain, and what is one of the main arguments of this thesis is that consumers' control over the market success of products does not come only from sufficient information about the quality of these products but, more importantly from information on how products fit their individual preferences – or how relevant they are to one's individual tastes and interests. This is relevant from the perspective of hits versus niche products as information about fitting alternatives drives consumers to seek products outside the classical brick-and-mortar range of hit products.

In the hit-driven economy, choice has been controlled by the supply-side. When the majority of products offered consist of mass appeal hit products, the possibility for consumers to find products that suit more individual tastes and needs is reduced. Yet, products of this nature meet much demand – and thus are hits – for a reason. Whereas they may not satisfy the more individual tastes and needs of a consumer, they do appeal to more general and homogenic tastes of consumer masses.

As explained in previous chapters through the examples of hyperchoice and information overload, increased product variety, as it is present in the online markets of the long tail economy, does not, in itself, empower consumers. As Harrison et al. (2006, 976) argue, information on the choice alternatives, prices, details, features, among other things, are key to effective individual choice decisions. In addition, it is argued that one of the biggest obstacles to active consumer choice is lack of information.

Indeed, without the ICT-enabled search tools consumers have today, the amount of choice they would be exposed to would be overwhelming. Furthermore, without the emergence of a network society, characterized by bi-directional computer-mediated communications and the global, communal relationships between consumers, the information, available to the consumers would be, to a great extent, in the hands of the suppliers.

To summarize, as much as the increasing consumer power is a result of increasingly powerful search tools that aid consumers in filtering the existing choice, it is equally important to understand the impact of emerging consumer interactions and the active role many consumers are willing to take in creating information in the markets. Consumers are empowered by the liberation of choice and information.

6.2 The degree of consumer empowerment

Pires (2006) argues that "[b]ecause consumer empowerment derives substantially from the knowledge that consumers appropriate from the Internet and from other sources, the extent of empowerment will depend on their ability to discern potentially

useful information for evaluating competing service-products on offer and to satisfy their needs with the least waste of time and effort" (Pires 2006, 939). He continues by noting that the degree of consumer empowerment thus depends on:

1. The number and quality of the value propositions that are available in the market (i.e. the extent of choice on offer)

2. Consumer market knowledge (i.e. the value propositions that the consumers know of)

3. A consumers ability to search for and gather new market information

4. A consumers ability to take advantage of alternative value propositions (e.g. the ability to assess what is on offer, economic, time and logistic constraints)

The first factor affecting the degree of consumer empowerment, the extent of choice, is still largely dependent on supply-side actions. This means that the extent of the product variety, available on the online markets, is dictated by aggregators like *Amazon* which, with unique characteristics such as an efficient cost structure and global reach, are able to offer this greater product variety in the markets and do it profitably.

What is important to realize, though, is that without the search tools and consumer interactions, these aggregators could not do this profitably. As mentioned, increased choice of alternatives as well as increased amount of information in the markets is more likely to have a negative effect on the consumers – provided that it is not made manageable and relevant for the individual consumer.

These tools that make both choice and information manageable and relevant are highly dependent on the actions that consumers themselves take. Recommender systems make use of the information they gather from consumers and their consumption. They make choice manageable by filtering it to include the most relevant alternatives to the individual consumer.

Without this information the array of alternatives would be out of reach for consumers simply because, if unfiltered, they would not be able to manage it. Furthermore,

without demand, this amount of alternatives, present in the online markets, would not be feasible to hold. This considered, in the list above by Pires (2006), the first and second factor can be seen as being closely interlinked. In other words, the extent of product alternatives in the markets depends on the awareness and knowledge consumers have of these alternatives. Yet, at the same time, without access to this vast array of product alternatives, no experience based information concerning these products would exist.

What is interesting to notice is that while increasingly sophisticated ICT-enabled tools, aimed to help the consumer to make informed decisions, enter the market, they are still merely facilitators and the actions consumers themselves take become increasingly impactful. Coming back to the list of factors by Pires (2006), consumers' knowledge of the market, their ability to search and gather information and their ability take advantage of the different value propositions, all depend largely on the consumer.

Thus, while consumers' knowledge of product alternatives as well as attributal information depends on their efforts to search for it, the nature and amount of information available, at the same time, is dependent on their actions. The impact consumers have on the nature and amount of information in the markets comes through the interactions they engage in. Virtual communities generate information about the product alternatives in the markets as well as any attributal information concerning these alternatives.

As Pitt et al. (2002) state, "although the Web offers consumers huge volumes of information, it is only quite recently that this information has become focused and reliable enough to empower consumers with the requisite technical expertise they need to check out products and services" (Pitt et al. 2002, 10). This, as it can be argued, is not merely a result of the supply-side actions that aim to increase the amount of available supply-side information in the markets and thus increase market transparency.

Pitt et al. (2002) continue by noting that many third party web sites offer consumers the choice to publicly evaluate complex products and services. Furthermore, a

feedback loop enables consumers to judge the quality of reviews and recommendations. This is yet another example of consumers taking the active role of providing demand-side information to the markets. Again, it is the actions of consumers themselves that determine the amount of power they hold over the supply-side.

Consumer empowerment is not, in essence, merely a result of technological advances. Rather, the most important factor affecting the increasing consumer power is the fact that this technology enables a new, more active role for the consumer. As it will be explicated further below, to date, consumers influence consumers. Consumers are providing the information needed to make informed purchase (or nonpurchase) decisions. As a result, consumers also play a significant role in the market success of products in the markets.

6.3 Consumer power and market success

In the long tail economy, consumers exhibit their power by having 1) access to a product variety not pre-filtered by the supply-side and 2) control over their choices by controlling the information they acquire in order to make these choices. Essentially, consumers' purchase and non-purchase decisions make up the demand that is crucial for the supply-side. As Shaw et al. (2006) note the following:

> Consumer demand is important because organizations would not generally produce an item or open a store without some evidence that individuals are going to buy in acceptable volume. Indeed, organizations are continuously adjusting their offerings in the context of attracting and maintaining customers and developing profitability. Organizations, however, have their agendas and produce what is in their best interests to produce. In doing so they can and do seek to persuade and manipulate consumers (Shaw et al. 2006, 1052).

Many things change when considering the characteristics of the long tail economy. One of them is the definition of "acceptable volume". Demand volume, from the perspective of suppliers, concerns with costs and profits. Along with the democratization of the tools of production, promotion and distribution, costs come down as well as the needed demand to exceed these costs to make a profit. While it is

important to remember that only those companies that have sufficiently efficient cost structures and reach, among other things, are able to realize the profitability of providing a far greater product variety, from the perspective of a consumer, they still have access to this product variety, regardless of the companies providing it.

The other issue that is changing is what Shaw et al. (2006) refer to as "persuading and manipulating" consumers. As the term "manipulate" commonly refers to controlling actions with devious or ingenious intentions, a more appropriate verb might be "to control". The ability to control consumers and thus demand comes from controlling choice and information.

As emphasized above, advances in information technology, as well as changes in the social behavior of consumers have both shifted this control away from the supply-side and in the hands of consumers themselves. In other words, while the market success of a product is always the result of consumers' actions to purchase or not purchase, the power to influence these actions is not anymore as much in e.g. marketing strategies or information policies from the supply-side as it is in the actions of consumers generating, sharing and disseminating information.

6.4 Demand shapes demand

Consumers, and thus demand, behave differently when exposed to unrestricted choice and information. This, in turn has an impact on the long tail demand distribution curve. The most interesting implications concern with the division between hits and niche products.

In the pre long tail era, defining hits and niche products, or high and low demand volume products, has been based on assumptions that are only now being challenged. Anderson (2006, 167) lists a number of "misunderstandings" concerning the definitions of hits and niche products. They include, among others:

- If it is not a hit, it's a miss
- The only success is mass success

- Low-selling = low quality

The scarce resources of production, promotion and distribution, and more importantly the resulting scarcity of alternatives in the markets have all contributed to the illusion of hits being hits and "misses" being "misses because consumers would simply prefer good products over bad products.

While regarding this division between hits and niche products simply as a matter of quality (or even just good versus bad) would be easy, the market success of these products, in reality, has traditionally depended on far more numerous and complicated factors. First, as explicated in chapter three, the availability of products has the most direct impact on their demand. The notion of availability here is related to both their existence in the markets as well as information about these products.

The second factor concerns with individual preferences. This means that while some products appeal to large masses of consumers, there are products that appeal to more individual tastes and interests and, as such, create much less demand. Again, this is not to be simplified to a matter of quality. The third factor concerns with the division between new and old. In the brick-and-mortar markets, old products in any given product category usually, and justifiably, make room for newer products. While these actions are justified both in the brick-and-mortar markets as well as online markets with many product categories (e.g. automobiles, electric appliances), there are numerous other categories in the online markets (e.g. literature, music) in which this "age discrimination" does not need to occur.

Consumers turning to hits and ignoring niche products, has been the result of the supply-side ultimately having much control over consumer choice. When this changes, and as the statistics in chapter two exhibit, demand changes as well. This is because consumers gain control over their choices.

Pitt et al. (2002) lists a number of implications the Internet has on information that have an impact on demand, and thus the market success of products. Among others, these include:

1. Consumer access to accurate, recent and unbiased information
2. Consumers readily able to talk to lots of other consumers
3. Consumers heightening awareness of a firm's shortcomings
4. Customers access to technical expertise for evaluating complex products and services

While only the second point on the list by Pitt (2002) makes the distinction between demand- and supply-side information, in actuality, all of the points stated above, concern with information that can result from both supply-side actions and consumer word-of-mouth. Furthermore, regarding the characteristic differences between supply- and demand-side information, it is the latter that is assumed to have a greater impact on market transparency and ultimately on demand itself.

Recommender systems, virtual communities as well as customer reviews on retailer websites and on different third-party consumer platforms all generate information that is non-discriminative. What this means is that they generally lack the (usually financial) incentives that dictate supply-side information policies. Recalling that traditionally the supply-side has used much of their scarce production, promotion and distribution resources focusing on high-selling products or products that are perceived as being potentially successful in terms of demand, not much effort has been put in products with a more narrow appeal. This, of course, has been even more evident in the pre-Internet era in which these resources have been even scarcer.

The market transparency resulting from both positive and negative information communicated through consumer word-of-mouth, on the other hand, is not necessarily hit-focused. That is, demand-side information practically ignores the division between high-selling hits and low-selling niche products and, from the perspective of promotion, levels the playing field between these two. When the starting point for the consumer is to find something of personal relevance, consumers should ignore the persistent illusion that they should focus on the short head of the long tail distribution curve – in other words, the popular products. Starting first with the whole range of product alternatives and filtering it down with the aid of passive, active and passive-active search tools reveals that the most appropriate products might be found from the long tail range of product alternatives as well.

The most significant reason for consumers to stay in the "comfort zone" of popular products has come from the fact that finding something very specific in regards of personal tastes and interests has imposed larger search costs on the consumers while relying on popular brands and products has been the most cost-efficient way to reduce risk. As search tools become increasingly efficient in filtering the array of alternatives into a manageable set of choices for the consumer, the search costs imposed on the consumer are consequently lower as well.

In regards of changing supply-side information policies – or corporate information disclosure policies – what drives the supply-side to provide increasing amounts of information about themselves and their products is not simply a matter of choice. While Rezabakhsh et al. (2006) argue that a more open information disclosure policy is a consequence of lowering costs of presenting information, the fact that consumer word-of-mouth has an increasingly important role in contributing information to the markets suggest that corporations may have no choice but to present information on their products and themselves more openly. This is simply because, whether the supply-sides provides this information or not, consumers are likely to acquire this information ultimately via consumer word-of-mouth.

Openness of information policy then becomes the question of goodwill and trust. If corporations do not take an active role in providing information (both positive and negative) for the consumers, any shortcomings that are not informed but come to the attention of the consumers deteriorate the goodwill and trust in these corporations. This is especially true now that networked consumers can take collective actions against companies by banding together and boycotting corporations (Rezabakhsh et al. 2006; Zureik & Mowshowitz 2005). Again, this exhibits the power consumers have over the supply-side both in terms of information as well as market success. Consumers have the sanctioning power to directly impact the demand that these corporations meet.

6.5 Consumers and product innovation

In regards to cooperative product development, open source software development is a pioneer example. As Lerner and Tirole (2002) note, "There has long been a tradition of sharing and cooperation in software development. But in recent years, both the scale and formalization of the activity have expanded dramatically with the widespread diffusion of the Internet" (Lerner & Tirole 2002, 200).

The Internet, and especially the emergence of different virtual communities, enables this cooperation to exist beyond the realm of software development. As Füller et al. (2006) note, online consumer groups represent a large pool of know-how and thus are a promising source of innovation in product development. Füller et al. continue by noting that, "[a]t present, except for open source software, little is known about how to utilize this know-how for new product development" (Füller et al. 2006, 57).

As well as generating information for other consumers, virtual communities that are based upon shared interest and enthusiasm for an issue or an activity can give important information to the supply-side as well. As stated before, the bi-directional nature of computer-mediated communication allows consumers to interact in ways that were not possible in the pre Internet era on a larger scale. Similarly, computer-mediated communication enables the interaction between consumers and the supply-side as well.

Bollier (2006) explains the difference between "push economy" and "pull economy" as follows:

> A 'push economy' – the kind of economy that was responsible for mass production in the 20th century – is based on anticipating consumer demand and then making sure that needed resources are brought together at the right place, at the right time, for the right people [...] In the pull model, companies recognize that trying to anticipate demand is a losing proposition and that, in any case, customers have far more market power than ever before. Small niches of consumer demand, long dismissed or patronized by sellers, are a growing market force unto themselves (Bollier 2006, 4).

Indeed, as consumers have gained more power, the supply-side market strategies should focus on cooperation with the consumers rather than trying to counteract the evident and increasing consumer power. As Bollier (2006) argues

> As an economic matter, the new pull marketplace can work not just because resources are generally plentiful but because the Internet enables people to express highly specific preferences, and sellers to meet those preferences, in ways that radically reduce transaction costs. Those cost savings enable highly specialized services to flourish in the marketplace. In a more conventional brick-and-mortar marketplace limited by local geography, high search-and-discovery costs, and uncertainties about trust and reliability, such niche specialization could not emerge (Bollier 2006, 11).

This is what the long tail economy is about. Consumers have more power over the supply-side than ever before. Consequently, this has direct implications on the success of the strategies that the supply-side implements. Consumers are realizing that they have the possibility to find specific niche products, relevant to their individual interests, tastes and needs. Similarly, the supply-side should realize and take into account that along with their diminishing control over choice and information they are loosing control over demand as well. That is, if they persistently try to control it by implementing strategies that rely on controlling this choice and information.

7. Conclusions and Discussion

7.1. Conclusions

Although the long tail phenomenon itself has started to emerge already in the last century, it is not until now that it has emerged as a topic of research. The product variety is growing due to technological advances that lower the costs of producing, distributing and promoting these products. The abundance of product variety in today's online markets is evident and the business models of the likes of Amazon or Google, as presented in this thesis, exhibit the ways businesses can profit by offering this variety.

This profitability, on the other hand, is not only determined by implementing the right business models or marketing strategies. As emphasized throughout this thesis, increasing product variety is only the first step. What determines the market success of the products in the markets, are the tools that enable consumers to find these products. In regards of information technology, a number of applications have been presented that aid consumers in finding the right products. Recommender systems, as one of the focus points in this thesis, enable consumers to locate products that are relevant to their tastes and interests. Information that they provide is not based on or controlled by supply-side information policies but rather on the actions consumers themselves take.

Similarly, virtual communities and the information they generate are controlled by networked consumers. As consumers gain more control over the information that guide their purchase decisions, they consequently gain more control over their choices. As much as the long tail economy is about abundant product choice, it is also about abundant information. Consumer control over these issues, in turn, translates into consumer power over the supply-side.

It is this increasing consumer power that reveals the shortcomings of the persistent assumption that popular is better. From the supply-side point of view, products with broad appeal have always been more profitable. From the consumer perspective, relying on popular products or brands is a way to reduce risk. Yet, as market information becomes increasingly transparent, the search costs of finding products outside the popular range – or the short head of the product curve – become lower as well. And as it seems, an increasing amount of consumers are capitalizing on their chance to venture down the long tail in search of products that appeal to their individual tastes. In other words, the traditional supply-side controlled monopoly over product variety, information and exposure is losing its power.

Table 2 summarizes the differences between hit-driven and long tail economies as discussed in this thesis.

	Hit-driven economy	**Long tail economy**
Society model	mass society	network society
Market actors	brick-and-mortar retailers	online aggregators
Resources	scarce	abundant
Product variety	narrow	broad
Market focus	hit-products	hit- and niche products
Market transparency	driven by supply-side information policies	driven by demand-side word-of-mouth
Market power	supply-side	demand-side
Market strategies	control of information and choice	consumer cooperation

Table 2: Differences between hit-driven and long tail economies

As discussed in Chapter 5, Internet has enabled the emergence of a network society which, in contradiction to the traditional model of mass society, enables consumers to engage in bi-directional communication, not only with each other but with the supply-side as well. Consumers, not bound in space and time, are forming virtual communities in which these communications take place. As opposed to the situation

not more than a decade ago, traditional brick-and-mortar retailing is complemented by online retailers of which some are able to reap the benefits of abundance of resources as well as of being spatially and temporally unbounded. These online aggregators, as they are referred to in this thesis, are able to offer a far greater product variety in the markets. As a result, the hit-focused approach of the hit-driven economy is no longer necessary as offering niche products that appeal to more individual tastes becomes economically feasible.

Control over information is shifting as an increasing amount of consumers are sharing their personal post-purchase experiences and thus generating demand-side information in the markets. As a result of gaining control over information, consumers are becoming increasingly more empowered and are able to control the choices they make and thus have also a more direct control over the market success of products in the markets. Increasing consumer power, in turn, forces the supply-side to revise the strategies that have traditionally relied on controlling the information and choice in the markets.

7.2. Discussion

This thesis is a conceptual analysis on the important changes that today's market environment has faced. It is important to realize that, to what extent do the characteristics of the long tail economy continue to shape this environment is, to a great degree, in the hands of consumers themselves. The degree of consumer empowerment is dependent on the degree consumers are able and willing to capitalize on their chance to have control over the information in the markets. Thus, the future of the long tail economy is not solely dependent on advances in information technology but also – and perhaps more importantly – on changes in consumer behavior.

One important thing to notice is the distinction between consumers that are able and willing to use the Internet and the power it enables, and the "more traditional" consumers that are not. It can be assumed that this question concerns largely with a number of demographics such as, and maybe most importantly, age. While this divide

between these consumer types still exists, it can be expected to shrink as the number of Internet using consumers constantly increases.

Another important question concerns with the actions the supply-side are to take in order to cope with these changes. As consumers gain more control over both the information in the markets as well as the choices they make, strategies that rely on trying to control information and choice may become infeasible. Nevertheless, as the divide between "traditional" and "net-savvy" consumers still exists, the supply-side has time to refine their strategies accordingly. Pull strategies such as cooperative product innovation, as discussed earlier, represents a type of strategy that acknowledges the power consumers hold. Whether these supply-side strategies should solely rely on cooperation rather than counteracting the increasing consumer power is an extensive question and should thus be a topic of study on its own. As any further considerations regarding supply-side strategies have been excluded from this thesis, it remains as a topic for a potential doctoral thesis to come.

References

Anderson, C. 2004. "The Long Tail." *The Wired Magazine*: October.

Anderson, C. 2006. *The Long Tail – Why the Future of Business Is Selling Less of More*. New York: Hyperion.

Atkeson, A. and P. Kehoe. 2001. "The Transition to a New Economy After the Second Industrial Revolution." *NBER Working Paper*, December, No. 8676.

Bakos, Y. 1998. "The Emerging Role of Electronic Marketplaces on the Internet." *Communications of the Acm*, 41:8, pp. 35-42.

Balasubramanian, S. and V. Mahajan 2001. "The Economic Leverage of the Virtual Community." *International Journal of Electronic Commerce*, 5:3, pp. 103–138.

Battelle, J. 2005. *The Search – How Google and Its Rivals Rewrote the Rules of Business and Transformed Our Culture*. New York: Penguin Group.

Bollier, D. 2006. "When Push Comes to Pull – The New Economy and Culture of Networking Technology." *A Report of the Fourteenth Annual Aspen Institute Roundtable on Information Technology.*

Brynjolfsson, E., Y. Hu, and M. Smith. 2003. "Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety." *Management Science,* 49:11, pp. 563-585.

Brynjolfsson, E., Y. Hu, and M. Smith. 2006. "From Niches to Riches: The Anatomy of the Long Tail." *MIT Sloan Management Review,* 47:4, pp. 67-71.

Brynjolfsson, E. and M. Smith. 2000. "Frictionless Commerce? A Comparison of Internet and Conventional Retailers." *Management Science*, 46:4, pp. 563-85.

Chen, F. 2004. "Passive Forum Behaviors (Lurking): A Community Perspective." *Proceedings of the 6th international conference on Learning sciences,* pp. 128-135.

Culnan, M. 2005. "Online Communities: Infrastructure, Relational Cohesion, and Sustainability." *Presented at the Workshop on Social Informatics,* University of California, Irvine. March 11–12.

Dellarocas, C. 2003. "The Digitization of Word-of-Mouth: Promise and Challenges of Online Reputation Mechanisms." *Management Science*, 49:10, pp. 1407–1424.

Dennis, A., S. Pootheri and V. Natarajan. 1998. "Lessons from the Early Adopters of Web Groupware." *Journal of Management Information Systems,* 14:4, pp. 65-86.

Elberse, A. and F. Oberholzer-Gee. 2006. "Superstars and Underdogs: An Examination of the Long Tail Phenomenon in Video Sales." *Harvard Business School Working Paper*, No. 07-015.

Fasolo, B., G. McClelland and P. Todd. 2007. "Escaping the tyranny of choice: when fewer attributes make choice easier." *Marketing Theory,* 7:1, pp. 13-26.

Füller, J., M. Bartl, H. Ernst and H. Mühalbacher. 2005. "Community based innovation: How to integrate members of virtual communities into new product development." *Electronic Commerce Research Journal,* 5:4, pp. 57-73.

Google. 2006. "Financial release 3rd quarter 2006 results." http://www.google.com/press/pressrel/revenues_q306.html Referenced 4.12.2006.

Granados, N., A. Gupta and R. Kauffman. 2003. "Can You See What I See? Transparency, Consumer Demand and Strategic Pricing in B2C Electronic Commerce." *Proceedings of the 2003 INFORMS Conference on Information Systems and Technology.*

Gupta, S., and H. Kim. 2004. "Virtual Community: Concepts, Implications, and Future Research Directions." *Proceedings of the Tenth Americas Conference on Information Systems*, pp. 2679-2687.

Harrison, T., K. Waite and G. Hunter. 2006. "The Internet, information and empowerment." *European Journal of Marketing,* 40:9, pp. 972-993.

Herlocker, J., J. Konstan, and J. Riedl. 2000. "Explaining collaborative filtering recommendations." *Proceedings of the 2000 ACM Conference on Computer Supported Cooperative Work*, pp. 241-50.

Internet.World.Stat. 2006. "Internet usage statistics." http://www.internetworldstats.com/stats.htm Referenced 13.12.2006.

Jenner, R. 1994. "Changing patterns of power, chaotic dynamics and the emergence of a post-modern organizational paradigm." *Journal of Organizational Change Management,* 7:3, pp. 8-21.

Johnson, E., W. Moe, P. Fader, S. Bellman and G. Lohse. 2004. "On the Depth and Dynamics of Online Search Behavior." *Management Science*, 50:3, pp. 299-308.

Kozinets, R. V. 1999. "E-tribalized marketing? The strategic implications of virtual communities of consumption." *European Management Journal,* 17, pp. 252–264.

Kumar, N., K. Lang, and Q. Peng. 2005. "Consumer Search Behavior in Online Shopping Environments." *e-Service Journal*, 3:3, pp. 87-102.

Lee, B. and W. Lee. 2004. "The effect of information overload on consumer choice quality in an on-line environment." *Psychology and Marketing,* 21:3, pp. 159-183.

Lerner, J. and J. Tirole. 2002. "Some simple economics of open source." *Journal of Industrial Economics,* 52, pp. 197-234.

Lindbeck, A. and S. Wikström. 1999. "ICT and household-firm relations." Stockholm: University of Stockholm, Institute for International Economic Studies. Seminar Paper No. 677.

Maxwell, S. 2005. "Hyperchoice and high prices: an unfair combination." *Journal of Product and Brand Management*, 14:7, pp. 448-54.

Mick, E., S. Broniarczyk and J. Haidt. 2004. "Choose, Choose, Choose, Choose, Choose, Choose, Choose: Emerging and Prospective Research on the Deleterious Effects of Living in Consumer Hyperchoice." *Journal of Business Ethics*, 52:2, pp. 207-11.

Mika, P. 2005. "Ontologies are us: A unified model of social networks and semantics." *Proceedings of the 4th International Semantic Web Conference (ISWC2005),* pp. 522-36.

Milgrom, P. and J. Roberts. 1992. *Economics, Organization, and Management.* Englewood Cliffs: Prentice Hall.

Nielsen/Netratings. 2006. "User-generated content drives half of U.S. top 10 fastest growing web brands." http://www.nielsen-netratings.com/pr/PR_060810.PDF Referenced 10.11.2006.

Nonnecke, B., and J. Preece. 1999. "Shedding light on lurkers in online communities." *Ethnographic Studies in Real and Virtual Environments: Inhabited Information Spaces and Connected Communities*, pp. 123-128.

Peterson, R. and M. Merino. 2003. "Consumer Information Search Behavior and the Internet." *Psychology and Marketing,* 20:2, pp. 99-122.

Pires, G. 2006. "The Internet, consumer empowerment and marketing strategies." *European Journal of Marketing,* 40:9, pp. 936-949.

Pitt, L., P. Berthon, R. Watson and G. Zinkhan. 2002. "The Internet and the birth of real consumer power." *Business Horizons,* 45:4, pp. 7-14.

Publishers.Weekly. 2004. "Editorial review of - Barry Schwartz: The Paradox of Choice." http://reviews.publishersweekly.com/bd.aspx?isbn=0060005688&pub=pw Referenced 13.11.2006.

Rezabakhsh B., D. Bornemann, U. Hansen and U. Schrader. 2006. "Consumer Power: A Comparison of the Old Economy and the Internet Economy." *Journal of Consumer Policy,* 29:1, pp. 3-36.

Rheingold, H. 1993. *The Virtual Community: Homesteading on the Electronic Frontier.* New York: Addison-Wesley.

Ridings, C., D. Gefen and B. Arinze 2002. "Some Antecedents and Effects of Trust in Virtual Communities." *Journal of Strategic Information Systems*, 11:3, pp. 271-295.

Ridings, C. and D. Gefen. 2004. "Virtual Community Attraction: Why People Hang Out Online." *Journal of Computer-Mediated Communication*, 10:1.

Savolainen, R. 1995. "Everyday life information seeking: Approaching information seeking in the context of 'Way of Life.'" *Library and Information Science Research,* 17, pp. 259-294.

Scoble, R. and S. Israel. 2006. *Naked Conversations*. New Jersey: John Wiley & Sons Inc.

Shaw, D., T. Newholm and R. Dickinson. 2006. "Consumption as voting: an exploration of consumer empowerment" *European Journal of Marketing,* 40:9, pp. 1049-1067.

Shipman, A. 2001. "Privatized Production, Socialized Consumption? Old Producer Power Behind the New Consumer Sovereignty." *Review of Social Economy*, 59:3, pp. 331-52.

Teevan, J., C. Alvarado, M. Ackerman and D. Karger. 2004. "The Perfect Search Engine Is Not Enough: A Study of Orienteering Behavior in Directed Search." *In Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI '04).*

Tirri, H. 2003. "Search in vain, challenges for Internet Search." *Computer*, 36:1, pp. 115-116.

Van Dijk, J. 1999. *The Network Society*. London: Sage.

Watson, N. 1998. "Why We Argue About Virtual Community: A Case Study of the Phish.Net Fan Community." In: Jones, S. G. (ed.) *Virtual Culture: Identity & Communication in Cybersociety.* London: Sage. pp. 102-132.

Westbrook, R. 1987. "Product/Consumption-based effective response and post-purchase processes." *Journal of Marketing Research,* 20, pp. 296-304.

Yang, J. and G. Miao. 2005. "The estimates and forecasts of worldwide e-commerce." *ACM International Conference Proceeding Series*, 113, pp. 52-6.

Zureik, E. and A. Mowshowitz. 2005. "Consumer power in the digital society." *Communications of the ACM,* 48:10, pp. 46-51.